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ABSTRACT

This is the fourth edition of the ERIC/SMEAC DIRECTORY OF PROJECTS AND PROGRAMS IN ENVIRONMENTAL EDUCATION. This edition contains summaries of 207 efforts, 121 of which were not reported in earlier editions. The remaining 86 are more recent reports of environmental education projects and programs previously described in the second and/or third editions. Included are summaries of efforts spanning a broad spectrum: K-12 formal education, post-secondary formal education, governmental agencies, and private organizations. Entries are listed by state. Each entry usually includes information relating to current program efforts, a person to contact regarding the program, materials available, and future plans. (RH)

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ENVIRONMENTAL EDUCATION INFORMATION REPORTS

A DIRECTORY OF PROJECTS AND PROGRAMS IN ENVIRONMENTAL EDUCATION
FOURTH EDITION

Compiled by

John F. Disinger

ERIC Information Analysis Center for
Science, Mathematics, and Environmental Education
The Ohio State University
1200 Chambers Road, 3rd Floor
Columbus, Ohio 43212

December 1976

SE 022 248

ERIC/SMEAC

ERIC is a national information system supported by the National Institute of Education for providing ready access to results of exemplary programs, research and development efforts, and related information that can be used in developing more effective educational programs. Through a network of specialized centers or clearinghouses, each of which is responsible for a particular educational area, current significant information relevant to education is monitored, acquired, evaluated, abstracted, indexed, and listed in ERIC reference publications. Through these reference publications any educator, anywhere in the country, has easy access to reports of innovative programs, conference proceedings, bibliographies, outstanding professional papers, curriculum-related materials, and reports of the most significant efforts in educational research and development, regardless of where they were first reported.

In addition, each clearinghouse produces bulletins, interpretive summaries, research reviews, and bibliographies. These products are made available by the ERIC system and are also announced in a separate yearly compilation.

The ERIC Clearinghouse for Science, Mathematics and Environmental Education is located at The Ohio State University, Columbus. Originally the center had responsibility only in the area of science education, and was named the Science Education Information Analysis Center (SEIAC). When responsibility for mathematics education was added, it became the Science and Mathematics Information Analysis Center (SMAC). In 1971 it was designated as the center for environmental education, and is now known as the Science, Mathematics, and Environmental Education Information Analysis Center (SMEAC).

This publication was prepared pursuant to a contract with the National Institute of Education, United States Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official National Institute of Education position or policy.

PREFACE

This is the fourth edition of the ERIC/SMEAC Directory of Projects and Programs in Environmental Education. Previous editions were published in December 1972, November 1973, and February 1975. This edition contains summaries of 207 efforts, 121 of which were not reported in earlier editions. The remaining 86 are more recent reports of environmental education projects and programs previously described in the second and/or third editions.

Included are summaries of efforts spanning a broad spectrum: K-12 formal education, post-secondary formal education, governmental agencies, and private organizations. Several sources were utilized in developing lists for requests for summaries for this edition, including:

1. The tables of contents of the three earlier editions;
2. Lists of recipients of federal funds for environmental education under P. L. 91-516 and P. L. 93-278, the Environmental Education Act of 1970 and its 1973 extension;
3. Recommendations of State Education Agency specialists for environmental education, in part derived from their reports in ERIC/SMEAC's Environmental Education 1975: A State-by-State Report;
4. Other projects and programs known to ERIC/SMEAC, through materials submitted to the ERIC system or through other contacts.

Particularly supportive has been Stan Lock of the National Park Service, U. S. Department of the Interior, who conducted a major effort in contacting NPS facilities across the nation for summaries of their environmental education activities.

A single request for input was mailed to the director of each project and program. In cases of non-response, no follow-up was made. Each request contained a general outline of the type of information desired, not a questionnaire. Reports contained in this volume are essentially verbatim copies of responses, with minor editing, condensing of overly-lengthy reports, and addition of listings of documents from that effort which have been announced through the ERIC system. Many directors included documents with their reports, as requested, but such documents are not listed in this edition because their processing into the ERIC system had not been completed at the time of publication.

Also added to reports have been references to summaries printed in the second and/or third editions of this Directory.

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Many documents prepared by various projects and programs which have been announced by the ERIC system through December 1976 are listed at the end of individual reports. Abstracts of such documents are printed in appropriate monthly issues of Resources in Education (prior to January 1975 titled Research in Education), in serial order by ED number. The reader who wishes to investigate these documents is advised to locate and read the abstracts, available in libraries which subscribe to Resources in Education, then check the abstracts to determine if documents of interest are available in ERIC microfiche.

Documents available in microfiche may be located in the ERIC collections noted in the Appendix to this volume. For documents not available in microfiche, RIE abstracts make reference to other sources of availability.

Individuals who wish may order microfiche or paper copies of many documents, as indicated in the abstracts, through:

ERIC Document Reproduction Service
P. O. Box 190
Arlington, Virginia 22210

Of particular interest to ERIC/SMEAC is additional information relative to projects and programs reported herein, as well as information concerning other projects and programs which might have been reported. Because the primary mission of the ERIC system is the announcement of documents of interest to the educational community, copies of such documents are always welcomed by this office.

John F. Disinger
Compiler

December 1976

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PROJECTS AND PROGRAMS
IN ENVIRONMENTAL EDUCATION

NATURE AND MAN ENVIRONMENTAL STUDY AREA

James F. Kretschmann, Superintendent; O. Frank Wilson Jr., Environmental Education Coordinator; Horseshoe Bend National Military Park, Dadeville, Alabama 36853; (205)234-7111.

Purpose:

To nurture within our elementary, secondary and college teachers and students and other youth groups with their leaders a greater appreciation for the environment by using the park field laboratory.

Objectives with teachers, students, youth groups and their leaders:

1. Foster an appreciation for the balance-of-nature concept.
2. Demonstrate how nature and man are intimately interrelated.
3. Indicate how man has exploited the area in the past and how it is gradually reverting to its original state.

Target Audience:

Elementary, high school, and college teachers and students, and other youth groups with their leaders, with particular emphasis on fourth through sixth grades.

Methodology:

The park has a self-explanatory guide of the environmental study area trail. Workshops are available for teachers.

Material Produced:

A Guide to the Nature and Man Environmental Study Area.

Plans for the Future:

Establish a second area which will employ the "strands" concept.

(December 1976)

PROJECT COPEE - A CONCEPTUALLY ORGANIZED PROGRAM FOR ENVIRONMENTAL EDUCATION

Dr. Michael A. Magnoli, Project Director; Mobile County Public School System, P.O. Box 1327, Mobile, Alabama 36601; (205)438-6011, Ext. 460.

Special Facilities:

A 640-acre Environmental Studies Center with four miles of nature trails complete with trail markers and species labels, a 20-acre lake, an amphitheatre, and restroom facilities with water fountains.

The staff includes one director, three professional staff members, one secretary and one clerk.

Project History:

1. Principal Originators: Staff members, administrators, and teachers of the Mobile County Public School System who were selected as part of an environmental education curriculum standing committee. This committee was assigned the task of defining the nature, scope and general direction of a comprehensive environmental education program and considering possible funding sources.

2. Date and place of initiation: July 1974, Barton Academy, Mobile, Alabama.

3. Overall project purpose: To develop a process by which students could be exposed to the types of factual and unbiased information that they would need to become "environmentally literate citizens" capable of making wise decisions. A K-12 curriculum guide composed of developed activities for implementation and integration into the existing curriculum will be the final product.

Project Objectives:

1. During the project period, teachers, students, school administrators, and community resource people will design and construct multidisciplinary K-12 environmental education guides which will be based on a schematic of concepts.

2. During the project period the environmental education staff will develop and publish a process model for implementing environmental education programs into existing school curriculum.

Materials:

1. Materials produced: K-5, 6-8, 9-12 environmental education activities are being piloted and evaluated by teachers and students. Presently the pilot program is approximately 90% complete and is being modified for inclusion in the proposed curriculum guide.

2. Free materials available: Project description; environmental education resource topics list; a Guide to Campus Improvement and Beautification; a Composite of Energy Curriculum Guides and Enrichment Materials; an Environmental Education Concept Inventory; Environmental Education Activities produced from 354 concepts; suggested activities in environmental education for grades K-5, 6-8, and 9-12; a list of sources for environmental education materials; a suggested reading list for environmental education program developers; and an information sheet identifying the recycling outlets accessible to Mobile County residents.

3. Materials produced that can be purchased: None.

4. New instructional materials being developed: Curriculum guides for grades K-12, Field Trip Plans for grades 1, 3, 5, and 7.

5. Additional materials being developed: Slide presentation entitled "Environmental Education in the Mobile County Public Schools."

Materials Implementation:

1. 62,182 students have participated in the environmental education program. These students are enrolled in 83 schools with approximately 2,900 teachers. Names and locations of schools where the program materials are being used can be obtained from the Mobile County Public Schools, Mobile, Alabama 36601.

2. The materials are also being used in the Galax Virginia School System, Galax, Virginia and the Catholic Diocese of Mobile.

Teacher Preparation:

Two-week summer workshop for teachers in Mobile County, environmental education presentation for faculty groups by environmental education staff, three phase workshop for Galax, Virginia schools conducted by the Director of Environmental Education.

Materials Evaluation:

1. Has the effectiveness of the materials been evaluated: Yes. State Review Team, classroom teachers, administrators and students.

2. Pertinent published research studies: A variety of presentations and papers prepared by individual staff members.

Project Summary:

During the past year, the local system committed itself to the construction and development of the ESC by appropriating $250,000 to provide a physical facility on 640 acres of school board property. This center will provide a location, as well as a permanent staff to provide support assistance for the continuation of all the environmentally related activities presently under the supervision of the project. Due to the nature of the process model and the multidisciplinary aspects of the curriculum materials developed, environmental education will continue in Mobile County after federal funding has ceased. If, indeed, the answer to our present and anticipated environmental problems is better education, then the Mobile County Public School System is moving on a variety of fronts to provide students with the types of information necessary to become environmentally literate citizens, and to provide them with the motivation necessary to become actively involved in solving these problems. The projected completion of the curriculum guide at the end of the project year will hopefully provide the necessary mechanism for integration of environmental education concepts and activities into all subject areas and all grade levels K-12.

Plans for the Future:

1. Produce curriculum guides for grades K-12.
2. Participate on Environmental Education Advisory Councils with the Alabama State Department of Education, higher education institutions, etc.
3. Participate in planning school or community environmental action projects such as recycling centers, car pooling programs, campus beautification projects, etc.
4. Prepare environmental education legislation and State Department of Education courses of study.
5. Design specific environmental education programs for pre-service and in-service teacher education at the elementary, secondary and higher education levels.
6. Prepare field trip lesson plans for all grade levels.
7. Design specific environmental education learning activities, research projects, etc., for students, teachers and citizens.
8. Develop communications and cooperative working relationships with educational institutions, organizations, and groups concerned with environmental education both internal and external to Mobile County.
9. Develop curriculum guides, audio-visual aids, and exhibits for facilitating environmental education, when such entities are not available on the commercial market.

---Michael A. Magnoli
October 1976

1975 DIRECTORY REFERENCE: pp. 137-140

CENTER FOR ENVIRONMENT AND ENERGY EDUCATION

Noel McInnis, Director; College of Education, University of Montevallo, Montevallo, Alabama 35115.

Sponsored by the Alabama Consortium for the Development of Higher Education under a grant from the Office of Environmental Education, the Center is developing a statewide network of environmental educators not only in schools, but in business, industry and labor, and in fraternal, sportsmen's, professional, religious, civic and service groups.

The Center will provide these people with informational and instructional materials that focus specifically on Alabama's environmental assests and liabilities, and that emphasize the prevention and solution of environmental problems.

The Center also sponsors a course in environmental education at the University of Montevallo, entitled "Environment, Energy and Your Future."

---Noel McInnis
December 1976

1973 DIRECTORY REFERENCE: p. 3

1975 DIRECTORY REFERENCE: p. 3

ALABAMA ENVIRONMENTAL QUALITY ASSOCIATION

2108 E. South Blvd., P.O. Box 11,000, Montgomery, Alabama 36111;
(205)281-6474.

Executive Vice President: Martha McInnis; Communications Specialist: Nancy Callahan; Field Service Coordinator: J. Frank Filgo; Executive Secretary: Mrs. Pat Thompson.

The Alabama Environmental Quality Association is a private, non-profit public service and environmental education organization with a mission to create an environmentally-literate citizenry among Alabama's people and to spark individual action and initiative in creating a higher quality of life. The Association embraces the philosophy that the people, when given sound, factual information, are the ones who should determine the kind of environment and way of life that should be developed and passed on to generations of the future.

The Alabama Environmental Quality Association has had an impact on thousands of Alabamians through a myriad of service endeavors. Among AEQA's host of environmental education publications are a monthly newsletter, EnvironNews, available by subscription for $2 per year; Recycling: Alabama Style, a 52-page booklet describing the manner in which a community recycling program should be organized (available for $1 per copy); and Your Little Corner of the World ($1.50 per copy), a Bicentennial pamphlet listing 200 steps citizens can take to improve the environment.

The Association operates an environmental film library and a speakers bureau, and frequently sponsors environmental education seminars in various Alabama cities (topics have ranged from "The Control and Disposal of Hazardous Waste," to "Pesticides and Your Environment," to "Alabama Surface Mining Legislation"). AEQA coordinates a clearinghouse service through which citizens receive help on specific environmental problems. It is spearheading an eight-state movement to develop the 200-year-old route of William Bartram, the first naturalist-artist of the American Colonies, as a National Scenic Trail through the Southeast, and was instrumental in 1976 organizing the official Bartram Trail Conference.

The Association annually sponsors the Governor's Environmental Quality Awards Program, thereby giving statewide recognition to those who make outstanding contributions to the quality of life in Alabama.

AEQA has recently initiated a membership structure to enable a wide spectrum of society to become directly involved in this unique, community-wide movement. For information, contact Mrs. Carolyn K. Dunlavy, Membership Director.

---Nancy Callahan
October 1976

1973 DIRECTORY REFERENCE: pp. 4-5

1975 DIRECTORY REFERENCE: pp. 3-4

ENVIRONMENTAL LIVING PROGRAM, FORT BOWIE NATIONAL HISTORIC SITE

Bill Hoy, Park Ranger in Charge, Fort Bowie National Historic Site,
P. O. Box 158, Bowie, Arizona 85605.

The over-all purpose of the Fort Bowie NESA (Environmental Living Program) is to provide regional school students an environmental live-in experience, via an ELP program that represents cultural and historic life-ways as they existed during the historic period of Fort Bowie.

Specifically, the program consists of three field camps patterned after the Chiricahua Apache, Mexican and Indian Wars U.S. soldier as they lived in southeast Arizona and northern Mexico during the dramatic climax of the Apache Indian Wars of the mid 1880's.

The Environmental Living method consists of replica structures, accouterments and cultural-historic food and role playing. The participants are regional students ranging from the third grade through high school with accompanying teachers. The students are prepared in classrooms prior to their arrival for individual roles, approximate period dress, food preparations, safety, etc. The encampments normally consist of a day and a half with overnight camping. Requirements for accuracy in historic matters are considerably less exacting than those for living history programs. Original artifacts are not used. Historic-cultural food is cooked, old songs sung and problems are solved along historic lines. On the second morning the area is cleaned and the values of the program and the historic themes are discussed with all present. Funding is normally from the area's regular operating program; however, in February 1976, $1,000 was provided from National Park Service regional funds.

Fort Bowie, from this viewpoint, is in need of another staff member, not necessarily of the Park Service, to aid in this complex program. We also hope to allow additional time for role playing and to secure the safety-sanitation matters.

---Bill Hoy
December 1976

CORONADO NATIONAL MEMORIAL

Laurel W. Dale, Superintendent; Thomas B. Carroll, Interpretive Specialist; Coronado National Memorial, Rural Route 1, Box 126, Hereford, Arizona 85615; (602)366-5515.

The Environmental Living Program is primarily an expanded role playing situation enlarged into simulated historical reality. Young people, by living as closely as possible to the reality of another time, period, or culture, become more acutely aware of both the elements of a past environment and of their own. In both environments, they can and will have to solve many problems of living. Thus, Environmental Living emphasizes three ideas:

1. Awareness of the site in the physical, historical, natural and aesthetic environment.

2. Our relationship to that environment.

3. Our relationship to our own environment.

It focuses on the following questions:

1. What are the elements of this environment?

2. Given these, how would you plan a day and a night of your life?

3. What might be your needs?

"Environmental Living," as the name implies is an actual living, overnight experience for children that takes place at any cultural, historic, or pre-historic site where the interaction and interdependency of man and his environment are represented. It relies heavily on pre-site explorations and preparation, role playing, problem solving, and "cross age" teaching--the enlistment of high school youth counselors and group leaders. Environmental Living is much more than this; above all, it is an experiment to see if by recreating and solving some of the environmental tasks and problems of the past we can come to understand the present - and solve some of our problems.

Teacher Workshops are usually held at the Memorial in the spring and fall. Four cultural environments are offered: Papago, Apache, Mexican and a 1540 Coronado camp. Although these four areas are primarily designed for school use in this program, they are also open for utilization by individuals, families and organizations which wish to have a similar experience. A handbook for the program at Coronado National Memorial is being developed and when completed will be available in limited quantities. A four-part manual and planning chart for the Environmental Living Program is available from the Government Printing Office, Washington, D.C. Order publication #693-575.

Coronado International Historical Pageant:

This annual cultural festival draws upon the historic and pre-historic cultures of the Sonoran desert for a full day of dance, song, drama, etc. Craft demonstrations are a significant segment of the program and visitors are encouraged to actively join in the varied activities. This is a major event in life of Arizona and Sonora and has proven to be very effective in communicating to thousands of visitors the rich cultural and natural heritage shared by the United States and Mexico. April 24 is the tentative date for the 1977 Pageant.

Coronado Borderlands Symposium:

Featuring scholars from Arizona and Sonora, this symposium concentrates upon the cultural and natural history of the Spanish Borderlands. The public is invited to attend and a special effort is made to contact youth organizations concerning this event, scheduled late in the summer.

General Interpretive Programs:

Natural history-environmental walks are scheduled each Saturday morning from Montezuma Pass to the Visitor Center, a distance of 3.1 miles. Historical talks are presented on weekends in the Picnic Area at 11:00 and at 2:00. School groups visiting the area are given one to three hour walks which center on environmental education. Video-tape capability is being developed in the area. Off-site programs are common and it is hoped that through an active audio-visual program we will have more impact in off-site presentations.

---Thomas B. Carroll
December 1976

COMMUNITY NATURE CENTER, PRESCOTT UNIFIED SCHOOL DISTRICT #1

Dr. Henry Dahlberg, Project Director, P.O. Box 1231, Prescott, Arizona 86301; (602)445-5400 Ext. 215.

The Community Nature Center was conceived by Dr. Kenneth Walker, Superintendent of Prescott Unified School District #1 and developed by Dr. Henry Dahlberg, the project director, with funds from the Elementary and Secondary Education Act Title III. The project began in August 1974. There are two full-time staff members, the director and a secretary.

The project is located within the Prescott city limits. The site is archetypal pinyon-juniper type with additional representives from the chaeparral and grassland communities. A portion of the site has rugged terrain with granite outcroppings. Plant succession is illustrated by an abandoned field. There is also an abandoned wagon road used in the middle 1800's. Over 185 plant species have now been identified on the site, over 50 species of birds, 15 reptiles and numerous mammals. The addition of a pond has added to the diverse speciation of the site with riparian plants. The site has a log cabin, school garden, over one mile of self-guiding nature trails, and an amphitheatre seating 80 people. A preservation area of some seven acres has been set aside. The Center is open to the public during the summer months from 7-3 Tuesday through Saturday and during the winter months from 8:30-11:00 Monday through Friday.

Project Objectives:

The Community Nature Center offers numerous programs for a wide range of audiences. Curriculum has been developed for elementary school children and is in the process of being developed for the secondary level. Research is conducted by the local college and many college classes use the Center to facilitate their classroom work. Three guides and one dichotomous key have been developed for use by the general public at the Community Nature Center. Programs combining conservation work experience and nature study are offered for youth groups such as the Boy Scouts. An environmental living program is being developed using the student built log cabin and the school garden. The Center has also been used for five three-hour credit graduate classes in environmental education taught by Arizona State University. The Center is open to students from schools throughout the state and has had visitors from many other states.

Curriculum and Visitors Materials Produced:

A teachers guide (K-6) has been developed and a secondary guide is in draft form. These guides incorporate the vast amount of environmental and outdoor education materials produced by projects throughout the United States. Also being developed is a short key to the common butterflies, reptiles and birds found at the Center. In final form is a Woodland Trail Guide which is a 32-page illustrated guide to the Community Nature Center. It is also available in Spanish. A Grassland Trail Guide for the wheelchair path has also been printed. Available in final form is a Dichotomous Key to over 90 of the common plants found in the pinyon-juniper life zone. A Plant Walk Guide deals with the ethnobotanical uses of 41 plants common to the pinyon-juniper life zone. A brochure of the Community Nature Center and a Curriculum and Visitors Materials Price List are available at no cost. The other materials described are available at our cost. The Community Nature Center sponsors several programs in teacher training and continuing education for adults in the community and at this time one-half of the teachers in the district have completed at least one three-hour credit course in environmental and outdoor education offered by Arizona State University. Over one-half of the teachers have completed the In-Service Day Workshop in the use of the Community Nature Center and other outdoor resources for outdoor and environmental education. Five different Community College classes used the Nature Center as a resource for their programs.

Project Evaluation:

The project is currently being evaluated as part of the final year of ESEA Title III funding. Evaluation results will not be available until Fall 1977.

---Henry Dahlberg
October 1976

FREEMAN HOMESTEAD ESA

Harold T. Coss, Park Naturalist, Saguaro National Monument, P.O. Box 17210, Tucson, Arizona 85731; (602)298-2036.

Purpose:

To provide teachers with ideas to work environmental education into their curriculum smoothly.

Objective:

Introduce school children to their natural and cultural environment, and develop in them an understanding of what is happening to our resources today.

Audience:

Primary use of the ESA is by Tucson elementary school children in grades 3 through 6. The Tucson metro area population is nearing one-half million.

Methodologies:

An orientation program is conducted by the naturalist staff at the Visitor Center. This may consist of a cactus garden tour, museum exhibit tour, special slide program, regular audio-visual program or movie depending on the desires of the teacher. The teacher then takes the group out to the ESA.

Evaluation and Plans for the Future:

A questionnaire for teachers was used in the 1970 edition of the ESA Teachers Guide (there have been three editions and two filmstrips in use since 1969). Based on a computer analysis of teacher responses we are currently modifying the Teachers Guide with the assistance of recreation majors in the School of Renewable Natural Resources at the University of Arizona. We hope to have an all-new Teachers Guide during the winter-spring period of 1977.

(December 1976)

ENVIRONMENTAL EDUCATION PROGRAM

Duane Schrock, Park Technician; Tumacacori National Monument, P.O. Box 67, Tumacacori, Arizona 85640; (602)398-2341.

The Environmental Educational Program includes the National Environmental Study Area and Environmental Living Program, both on the ten-acre Monument site.

Teacher workshops are held on the Monument, usually in the fall, but will be held when requested. The NESA workshop is for one day; the workshop for the ELP continues through the night and ends after breakfast the next morning. There is no fee for either workshop, but participants must provide their own food.

Tumacacori National Monument was established to preserve the ruins of an abandoned mission. The Monument has become a vehicle to acquaint visitors with the historic role of the Spanish mission frontier, its impact on the native American peoples, and its contribution to the cultural heritage of the Southwest.

The cultural history of this area lends itself well to the two programs. The Hohokam were in this area for thousands of years, followed by the Piman who were here for about six hundred years before they were joined by the Europeans. As only one example, the strand of adaptability was and continues to be dominant for survival in a desert habitat. Not only is this true for native plants and animals, but Native Americans and the later Europeans saw adaptability as absolutely essential for life in the desert.

The Environmental Living Program involves a role playing technique of learning about the past. This method is effective in teaching the relationship of the missionary priest with the Indians. However, the role playing relationships could go back in time to before the arrival of the Europeans, or focus on the environmental changes which have taken place in this area during the twentieth century.

Because of the small size of the Monument, other visitors will be near the students' activities during the day, but at times the exchange of dialogue and ideas can be a rewarding experience for all. A fireplace, ramada, cooking utensils, water, and restrooms are available for use. Advance reservations must be made.

(December 1976)

ENVIRONMENTAL EDUCATION PROJECT

Dr. Carl Jamison, Coordinator; The University of Central Arkansas,
College of Education, Conway, Arkansas 72032.

The Environmental Education Project based at the University of Central Arkansas is a cooperative endeavor on the part of the Arkansas Department of Parks and Tourism and the University of Central Arkansas.

The overall purposes of the project are:

1. To develop a materials center for the production and dissemination of information about the environment to Arkansas teachers and school children.

2. To develop a series of multi-disciplinary courses aimed at pre-service and in-service teacher education.

3. The development of teaching methods to be used with a wide range of youngsters in field-based and classroom settings.

4. The ultimate development of an Environmental Resource Center at Petit Jean State Park.

Specifically, the project is intended to provide Environmental Education instruction to a group of Arkansas teachers (30-60) during the 1976-77 school year and to a group of Arkansas school age youngsters coming from the classrooms where these teachers are employed. The project would provide for field-based experiences of a week's duration during which time the materials which are being developed in the Resource Center would be tested with the youngsters and teachers.

Within the state of Arkansas, there is an advisory committee on Environmental Education and located at the University of Central Arkansas is an in-house Advisory Committee coming from a number of disciplines scattered throughout the University. This latter group is responsible for the development of a series of courses which will ultimately lead to a Masters Degree in Environmental Studies and to a group of courses which will be available to pre-service teachers and other University students. The project has three phases. They are:

1. A phase which was completed during the 1976 summer and enrolled fifteen teachers. These teachers were involved in a workshop which involved the development of some materials and teaching units. This group of teachers was to provide the nucleus for the next two phases.

2. The second phase is included within the area, Environmental Research. The fifteen teachers during the academic year, 1976-77, will be involved in field-based Environmental Education with the field experiences mainly occurring at Petit Jean State Park and the urban setting of Little Rock.

The last two phases are now in the process of getting under way. Part of this delay can be attributed to the original intention to locate the Environmental Education Center at Petit Jean State Park. However, the facility was not ready for use at the time that the project was funded. A series of changes in state government which led to new personnel has created a delay in implementing the project.

The project was funded by a United States Office of Education grant in the amount of $37,255. The state was to have provided funds in the amount of $179,387. The majority of the state monies was to have been expended on remodeling facilities existing at Petit Jean State Park. A somewhat depressed economy has led to the reexamination of these expenditures and while the project will be implemented, it will not be possible to utilize the facilities at the present time.

The state is continuing to supply funds through the Department of Parks and Tourism and there is an individual within the State Department of Education whose primary responsibility is Environmental Education. The colleges and the State Department of Education, along with the Department of Parks and Tourism, have a very fine relationship and this sort of cooperative venture is one with which the state can point with pride. The venture best illustrates that education is not the sole responsibility of one agency.

The primary plans for the future involve the development of packets of materials and a number have been developed at the present time. This media-based concept will allow for an appreciable number of Arkansas teachers and community individuals to be involved with Environmental Education and to assume a role in the testing of such materials. Ultimately, the materials will come from a Materials Resource Center to be located at Petit Jean State Park which will also provide a residential setting for field-based experiences for teachers and students. Ultimately, through pre-service and in-service education, a great number of Arkansas teachers will be exposed to concepts related to Environmental Education in a systematic manner.

(November 1976)

BACKPACKING: ENVIRONMENTAL EDUCATION PROJECT

Tom Jenkins, Fayetteville Senior High School, 1001 West Stone Street,
Fayetteville, Arkansas 72701.

Many problems that students have originate with the loss of interest in the public school program. With this loss of interest, students may involve themselves with less constructive activities such as drug abuse.

A very realistic method of reducing tendencies toward drug abuse is to provide activities which may satisfy the same needs. This program attempts to place in the school program an activity that provides the type of "adventure" that is not commonly found in the student's life.

During the one semester (18 weeks) the student participates in this program, he is involved in activities ranging from backpacking and field trips to special speakers and individual student projects. It is the backpacking and extended field trips to remote natural areas in Arkansas and Missouri that give this program its unique appeal.

Backpacking trips are not only the most unique feature of the program and the most publicized, but it is the one aspect that requires the most organization and preparation. First, consideration must be given to equipment. The school furnishes the basic equipment but students must furnish their own food, boots and clothes.

In preparation for backpacking trips, particular attention is given to organizing proper clothing, first aid training, food group menus and orientation to school furnished equipment. It is the attention to detail that develops the individual student's confidence.

Trips are taken to the Caney Creek Wilderness Area in southwestern Arkansas and to Devil's Den State Park in northwestern Arkansas. These trips provide an excellent opportunity for students to interact with their peers through organization of equipment and provisions. From this interdependence and the sharing of new experiences in remote natural areas, the class develops a group "spirit" where interpersonal relationships and leadership evolve.

Backpacking trips also provide the stage for environmental studies and survival training. This type of activity provides not only the place, but the extended time that is not given in the normal school day.

Extended field trips during the day and sometimes overnight provide additional opportunities to observe, listen and discuss environmental issues. These trips include the Ozark Underground Laboratory (a research cave), Lake Fayetteville Study Center, and the Federal Bureau of Sport Fisheries. During these visits students come in contact with special facilities and knowledgable resource people.

In order to bring community resources in contact with the students and provide an avenue for students to investigate personal interest areas, guest speakers and individual student projects are incorporated into the program. The speakers and projects present such subjects as photography, astronomy, survival techniques, Ozark folklore, trail cookery, rock climbing, modern recreational equipment and many other topics.

Since this program involves many activities outside the classroom, and guest speakers and student projects during class time, community members and agencies contribute greatly to the program. Included in those that contribute are: Ozark Underground Laboratory; University of Arkansas Museum, Planetarium and Botany Department; Federal Bureau of Sport Fisheries; Arkansas Department of Parks and Tourism; Devil's Den State Park; Museum of Science and Natural History at Little Rock; Ozark Society; Ozark Mountain Sport Shop; State Department of Education; Red Cross; Arkansas Ecology Center; and the Fayetteville High School Administration and Science Department staff.

The overall response to the program by the school and community is positive. Student publication (yearbook, newspaper) have provided extensive coverage of the program activities and have been supportive. Continuing interest is documented by heavy response for enrollment in future classes.

Any time a new program is incorporated into a school program it will have some initial problems. The single most difficult problem in this program was the scheduling of time for outside activities. However, this proved to be a very valuable asset by allowing students to help determine the overall time frame for program events.

At the beginning of the session students were furnished with a list of the activities that would take place, a school calendar and a blank calendar. Students identified their responsibilities and time commitments and when the group met again they decided what activities would take place when. This provided student input at the start of the program and made them aware of the responsibilities other students have. With the calendar, set arrangements can be made for travel well in advance.

The single most costly factor in this program was the backpacking equipment provided for students by the school. The equipment selected for the program has served exceptionally well. However, if reductions in equipment expenditures were necessary, the following equipment could easily be furnished by the student: eating utensils, flashlight, pocket knife, drinking cup, inexpensive rain gear and food containers. But, it is imperative that quality equipment be provided for the students in order for the outdoor camping experience to be safe and enjoyable. This provided equipment should include the pack, tent, sleeping bag and cooking equipment.

Today's schools are pressed with budget cuts and a trend to reduce curricula to the "basics." If a school district is committed to providing experiences that teach and have a high student appeal, this program can be maintained at a relatively low cost after the backpacking equipment is purchased. The only continuing expense is equipment maintenance and travel. Since Arkansas has many suitable areas for outdoor activities, every school district is within a reasonable distance.

This program provides an avenue in the regular school program for adventure to enter the lives of students. Along with this adventure come physical challenge, emotional development, interpersonal experiences, and learning through experience.

---Tom Jenkins
September 1976

1973 DIRECTORY REFERENCE: pp. 19-20

HOT SPRINGS NATIONAL PARK ENVIRONMENTAL STUDY AREA

Superintendent, Hot Springs National Park, P. O. Box 1860, Hot Springs National Park, Arkansas 71901.

The Hot Springs National Park National Environmental Study Area was used primarily by schools which have established similar areas, sometimes contrasting areas, on their own grounds. About a dozen teachers of the fifty trained several years ago are purely dedicated, sticking with it despite lack of transportation or more than lukewarm support by school administrators.

During this bicentennial year the cultural environment was stressed with an independent group for the outlying areas from the City where resources have not been regarded as being as plentiful as in the City schools. Surprisingly it was learned a number of the schools enriched their programs with field topics and special projects on a far bigger scale than expected. Reception to the programs was so good an effort will be made to complete the program as projected, which will be a small scale effort.

In smaller schools the target groups were junior and senior high schools rather than the traditional fifth or sixth grade level and this created no problems. It was noted the requests for additional movies and other materials were predominantly from history teachers in the upper grades. The movies and literature produced by the National Park Service at Harpers Ferry Center, West Virginia, were rated as outstanding by teachers and students.

The follow-up Park visit was self-guiding so reports on this aspect tended to be sporadic. Enough specific materials taken by school groups at the Visitor Center information desk were secured to indicate many classes came to the Park for field trips and projects. Several classes contacted on their topic commented on how well the materials were presented in the classroom--the field trip is, of course, proof of the efficiency of the program. The Hunter-Dunbar exploration in 1804 to examine the Hot Springs, the feature of bicentennial year exhibits, seemed to be comprehended easily by the junior high school students, and most elements of the tour seemed meaningful. Both items were matters on which evaluation was desired.

Two drawbacks not entirely unexpected came in the form of requests for additional historical materials which are not in print, and requests to visit bathhouses when they are closed after school is out.

Modest bicentennial funds enabled the Park to provide the programs once a week over an 8-week period. The schools received notice that the programs became possible only because of this funding and could not be expected to be a continuing thing. In several schools all classes could not be scheduled as requested. Time ran out on picking these up at the end of the school year.

Thorough training of the seasonals in interpretive techniques involved in environmental education produced results in the classroom just as it normally does when the same approach is taken in the out-of-doors. Teachers and students alike had their appetites whetted for seeing things for themselves, exploring possibilities and asking and answering their own questions.

---Bernard Goodman
December 1976

ARKANSAS ECOLOGY CENTER

Tom Foti, Director; 1919 West 7th Street, Little Rock, Arkansas, 72202; (501)374-6271.

The Ecology Center has been awarded an $18,000 grant from the Department of Health, Education and Welfare for the purpose of developing a lesson plan and resource materials package for the public schools. The subject is the Natural Divisions of Arkansas, an approach to the study of Arkansas geography which also attempts to teach how natural systems function and especially how people relate to the rest of the natural system. This approach was developed by Tom Foti of the Ecology Center and has been widely praised throughout Arkansas.

The grant was awarded under the Environmental Education Act by the Environmental Education Office of the U.S. Office of Education, DHEW, and is being undertaken in cooperation with the Environmental and Conservation Education Program of the Arkansas Department of Education. Bill Fulton, Environmental Education Specialist of the Department will work on the project, and the Department will provide secretarial support.

The grant will extend one year beginning July 1, 1976. During the year a book will be produced on the Natural Divisions, a teacher's guide, a slide show and "hands-on" materials for students' use.

The materials will be developed into a one-day to two-week module to be varied to suit the needs of the individual class and used as part of full-year courses in Social Studies, Arkansas History, Biological Science, Earth Science and other courses. Since the materials will be prepared for the teacher, it will be flexible as to course and grade level and therefore will be tried in as many courses as possible and at grade levels from 4-12 or even college. There has been interest in adapting some of the materials for use by lower grades.

The following school districts have expressed an interest in participating: Little Rock, Ft. Smith, Bryant, Stuttgart, Monticello, Lake Hamilton (Hot Springs) and Fayetteville, with more possible. A very special part of the project will be headed by Scotta Sheets, a Social Studies teacher at Mills High School in Pulaski County, who will team-teach a full-year natural divisions course.

In the past the Arkansas Ecology Center has carried on a three-year land use study of eastern Arkansas funded by the Ford Foundation, and has conducted three EPA Clean Water workshops and distributed a follow-up newsletter on clean water.

---Tom Foti
September 1976

BIG STUMP ESA

District Interpreter, Grant Grove, Kings Canyon National Park, California 93633.

Overall Purpose:

To provide an ESA for the area schools which have been coming to Grant Grove for many years. Lack of staff precludes having an interpreter available for every visit. Through the use of this study area the teacher and student can better appreciate the way of nature and the fact that they are a part of it.

Specific Objectives:

To involve the student and teacher with the natural and historic site rather than an informational instruction type of exercise. The teacher's guide attempts to give the teacher a point of departure from which to work with the children.

Target Audience: Fifth and sixth grades.

Methodologies:

Use of the inquiry method and the STRAND system, to introduce a given stop on the trail and pose questions for the group in terms of their home environment.

Materials Produced:

The Big Stump Environmental Study Area, A Teacher's Guide to a Natural and Man-influenced Area of Kings Canyon National Park, by Robert C. Zink, Supervisory Interpretive Specialist. A 24-page mimeographed booklet covering: Preparations for the Field Trip; The Big Stump ESA Guide; Appendix A - The Journey to the Park, Vegetative Patterns and Man Use Patterns; and Appendix B - Bibliography. This guide was written for the two-day training seminar workshop given on occasions, but it can serve as a field guide, hopefully, on a walking examination of the area by the teacher before the students are brought to the Park. The guide is free upon request.

Plans for the Future:

Hopefully, more teachers will request the weekend workshop so that they will become better acquainted with the area and the use of the STRAND system of study on the ground. A leaf/stem - tree/shrub/plant sketch identification was planned but uncompleted at this time. This type of guide is planned since few plants are in blossom when school children visit the area.

(December 1976)

UCLA/LOS ANGELES INNER-CITY ENVIRONMENTAL EDUCATION PROJECT

Dr. Mark Lipschutz, Project Director, Office of Experimental Educational Programs, 405 Hilgard Avenue, Los Angeles, California 90024.

This project addresses the often neglected environmental educational needs of low income and inner-city communities by linking the high schools of these communities with the resources of the university. Its approach is to train high school teachers as qualified environmental educators. Once trained, the teachers, aided by UCLA undergraduate volunteers, will conduct mini-courses in their own schools. As a component of the mini-courses, teachers will help their pupils create locally-oriented environmental education projects which will be presented to the neighboring community, thus bringing environmental education from the university to the inner city.

The project will be implemented in cooperation with the Los Angeles Unified School District and other school districts in Los Angeles County.

Stage I: (Summer, 1977) A community advisory board will be formed to review proposed actions of the project staff. The board will meet regularly during the project year. Twenty high school teachers and forty UCLA upper division undergraduates will be trained as environmental educators. The teachers will be chosen from schools in lower-income communities. The students will be highly motivated individuals who have already completed coursework in environmental studies. A six-week summer institute will be conducted at UCLA to educate the teachers and students, using a multidisciplinary approach drawing from the Department of Geography, the School of Architecture and Urban Planning, the School of Public Health, and the Creative Problem Solving Program. The institute format will include lectures, group discussions, field trips, and invited speakers oriented around selected environmental themes. During the last week of the institute, members will complete design of a high school environmental mini-course curriculum, to include workbooks and other resource material which will be implemented in the subsequent stage. The teachers and students will be awarded credit through UCLA summer school.

Stage II: (September 1977 - January 1978) Two UCLA students will have been assigned to each participant high school teacher, to work as teaching assistants in implementing the mini-courses. During the fall high school semester, these teams will teach environmental mini-courses based on the themes introduced at the summer insitute, and resource materials developed there. Special emphasis will be given to those themes which relate to the specific environmental problems of the individual communities. The high school students will also be asked to contemplate local environmental education projects, to be implemented in the community during the final stage.

The UCLA students will continue to pursue interdisciplinary environmental studies through existing university curricula.

Stage III: (February - June 1978) Community education projects designed in fall semester will be implemented by high school students supervised by the trained environmental educators. These projects, in the form of presentations, will be delivered to the entire high school, to elementary schools, and to local community groups such as churches, scout troops, and social action groups. High school students will participate in supervised group discussion of their work, and keep a general log of their experiences.

Toward the end of Stage III the staff will undertake an evaluation of the Environmental Education Program drawing on established assessment instruments or models to the extent possible.

The principal investigators will complete documentation of the year's activities to facilitate replication of the program in other communities. Evaluators and participating faculty will make recommendations on how to institutionalize the program at UCLA and participating schools.

Principal Investigators:

Dr. Christopher Salter
Geography Department
UCLA Bunche Hall

Dr. Jane Permaul, Dean
Experimental Educational Programs
394 Kinsey UCLA

Dr. Harry Silberman
Graduate School of Education
Moore Hall UCLA

Project Director:
Dr. Mark Lipschutz
Experimental Educational Programs
394 Kinsey UCLA

Assistant to the Director:
Diann Reingold
Experimental Educational Programs
394 Kinsey Hall UCLA

---Mark Lipschutz
September 1976

ENVIRONMENTAL LIVING PROGRAM (ELP)

John Muir National Historic Site, 4202 Alhambra Avenue, Martinez, California 94553.

Overall Purpose:

ELP's in general aim at creating an understanding of our environment through living in and recreating natural and cultural environments of the past. At John Muir National Historic Site, the cultural environment recreated is that of Muir's turn-of-the-century fruit ranch. This economic environment is contrasted with Muir's conservation ideas, hopefully pointing out the necessity of both concepts.

Specific Objectives:

1. For the participants to experience the life of an early-day orchard worker.

2. To appreciate Muir's conservation philosophy and the importance of his work.

3. To be able to contrast and compare the two, and understand how they relate, and the place for each in today's (and Muir's) everyday life.

4. To experience living and working together for an extended period (as opposed to a regular class day).

Target Audience:

Fourth to sixth grade students in a private or public school class. Each program can accomodate a class of up to 30 students.

Methodologies:

The program lasts 24 hours. Students work at tasks in the orchard and participate in arts and crafts activities that relate to the time. Meals are student-prepared. Other activities include discussions of tools of the period, writing "a letter to home," role-playing events in Muir's life, etc.

Materials:

The basic background for ELP's in general is found in Environmental Living Program, by Mary Lou Baldi, available from Superintendent of Documents, stock number 024-005-00617-6. This background is supplemented with teachers workshops at the site.

Program Evaluation:

Teacher and student response has been very positive.

Plans for the Future:

The program should continue much as it has in the past. Each year approximately 25 classes participate, usually in September to November and February to May.

(November 1976)

EAST BAY REGIONAL PARK DISTRICT

Richard C. Trudeau, General Manager, East Bay Regional Park District,
11500 Skyline Boulevard, Oakland, California 94619; (415)531-9300.

The overall purpose of the Department of Parks and Interpretation is to reach our general public on a regional basis. We are both a recreational and teaching park district set in two counties surrounded by cities and townships; hence, our designation as a Regional Park District.

Our specific objectives have been to staff, as best we can, along with our land acquisitions. We have gone from 8500 acres to 42,000 acres, with the main thrust of the acquisitions done under our general manager, Richard Trudeau. Our target audiences have been as broad a catholic spectrum as we could make, from 600,000 grade school and high school, etc. students coming to interpretive programs, to programs for hospital and convalescent homes; work in the area of urban education in such things as gutter walks and supermarket walks; work with environmental engineers; working with state highway engineers, toll bridge authority engineers in training for environmental impact writing.

We have now stated a new policy of dropping admission fees for schools and various other functions. A new emphasis is also that the District is being oriented both physically and psychologically for service to that significant segment of the population known as "the handicapped."

We are also working with the various transit authorities to provide entry into the parks on the part of the individuals and families who do not have transportation, for we are trying to fulfill former Secretary of the Interior Stewart L. Udall's statement, "I would cite the East Bay Regional Park District as one of the finest inter-county park systems in the nation."

Our $500,000 Environmental Education Building is now in full swing. We are in the process of organizing various methods of budgeting and planning so that we may become even more efficient. We plan to double our land holdings, and we hope to keep that quality of communication and services which is somehow symbolized by a staff naturalist of ours, David Lewton, who communicates readily in sign language about the beauties and wonders of the East Bay Regional Parks.

We have been teaching our interpretive methodology in various state, county and national parks so that we may all share what we practice here at the East Bay Regional Park District.

---Josh Barkin
Interpretive Specialist
October 1976

PROJECT MER

Dr. Donald Lundstrom, Director; Director of Curriculum, Alameda County Superintendent of Schools Office, 685 A Street, Hayward, California 94541; (415)881-6196

Bob Watanabe, Associate Director; Coordinator, Social Sciences, Mathematics, Science and Environmental Education, Contra Costa County Superintendent of Schools Office, 75 Santa Barbara Road, Pleasant Hill, California 94523; (415)944-3383.

Address all correspondence to: Marge Matovich, Executive Secretary, Project MER, 75 Santa Barbara Road, Pleasant Hill, California 94523; (415)944-3413.

Project MER (Marine Ecology Research), operated jointly by the Alameda and Contra Costa County Superintendents of Schools Offices, with support from the Diocese of Oakland, provides the Bay Area students with an opportunity to study marine ecology as part of their school curriculum and to participate in a series of ongoing scientific research studies of the San Francisco Bay-Delta-Estuary complex.

Involved are senior high students, mostly enrolled in biology classes. They spend six to eight weeks utilizing the MER curriculum materials. The Guide to Marine Ecology Research, a comprehensive unit including selected readings on estuarine ecology with emphasis on the local region and integrated laboratory investigations, was written by local teachers. The students spend two four-hour sessions at the Point Molate Marine Laboratory located in Richmond. During the first session, the students study the techniques used to measure the physico-chemical parameters of Bay waters and learn methods for studying the biological parameters. The second session involves students as researchers. At the lab, they participate in ongoing research problems. Present investigations include migration studies of pelagic fish, population surveys of dominant invertebrates, fluctuations in populations on varying substrates, etc.

Following training, students operate established field Monitoring Sites around the Bay where they monitor the waters for the physicochemical and biological parameters. Data collected is reviewed by the MER staff for validity and entered in the county computer for analysis.

A special program is offered for junior high school students at the P.M.M.L. The materials developed by local teachers are especially designed for this age group. A resource guide for these teachers is under development. A laboratory site is presently being developed at Encinal High School, Alameda, for both the senior and junior high levels.

Project MER is supported by funding from the Alameda and Contra Costa County Superintendents of Schools Offices. The two County Offices and the Oakland Diocese, Department of Education have also covered indirect operation and publication costs. Participating schools provide supplies, transportation and substitutes. The 12th Naval District makes the P.M.M.L. space available at a minimal lease cost.

The Alameda Unified School District is providing laboratory space and other services for the Encinal High School site.

Standard Oil Company has donated funds, supplies and equipment. Additional funding for instructional supplies, equipment and miscellaneous expenses is also being sought from industry and government.

Project MER was initially supported by funds from the Contra Costa County Board of Supervisors through their California Fish and Game Fine Fund. This was followed by a grant from the Rosenberg Foundation. In 1971-72, a National Science Foundation grant funded the project. An ESEA Title III grant provided continued support for three additional years.

Publications:

Handbooks

The Handbooks were designed for use by students, grades 9-14, studying the ecology of the San Francisco Bay-Delta-Estuary Complex. Although Part I was designed for marine and brackish waters, some of the solutions could be modified to use in any kind of program involving testing for water quality. While the keys (Parts II-VI) are specific to this area, they will demonstrate how local teachers can devise practical keys to organisms in their area.

Part I	Monitoring Techniques for the Measurement of Physico- and Biological Parameters	$1.00
Part II	Key to the Phytoplankton Phyla and Genera	.60
Part III	Key to the Invertebrates	.80
Part IV	Key to the Coastal Marine Fishes of California	.50
Part V	Key to the Freshwater and Anadromous Fishes of California	.50
Part VI	Key to the Common Fishes of San Francisco Bay	.50
		$3.90
	Complete Set	3.50

Guides

The Guide was designed as a six to eight week unit to supplement the traditional tenth grade biology programs. The materials in the Guide include readings and laboratory activities and were prepared by teachers in Alameda and Contra Costa Counties.

Guide to Marine Ecology Research, revised	$2.50
Teachers' Supplement for the Guide to Marine Ecology Research	2.50
	$5.00
Complete Set	4.75

Publications are available from: Contra Costa County Superintendent of Schools Office, Educational Media Services, Attn: Walt Harris, 2371 Stanwell Drive, Concord, California 94520. Make checks payable to: County Treasurer and Tax Collector.

---Marge Matovich
October 1976

1973 DIRECTORY REFERENCE: pp. 25-27

1975 DIRECTORY REFERENCE: pp. 8-9

ERIC DOCUMENTS:

1. Part I - Monitoring Techniques for the Measurement of Physio-Chemical and Biological Parameters. SE 016 645
2. Part II - Key to the Phytoplankton Phyla and Genera (1971). SE 016 646
3. Part III - Key to the Invertebrates (1971). SE 016 647
4. Part IV - Key to the Coastal Marine Fishes of California (1971). SE 016 648
5. Part V - Keys to the Freshwater and Anadromous Fishes of California (Reprint from California Fish and Game, Vol. 46, No. 4, Oct. 1960). SE 016 649
6. Part VI - Key to the Common Fishes of San Francisco Bay (1973). SE 016 650
7. Marine Ecology Research, Resource Units, Grades 7-9. Draft. ED 106 088
8. Guide to Marine Ecology Research...A Curriculum for Secondary Students. ED 106 089

BEAR VALLEY NATIONAL ENVIRONMENTAL STUDY AREA

Point Reyes National Seashore, Point Reyes, California 94956.

The Bear Valley National Environmental Study Area consists of the land surrounding and including park headquarters for Point Reyes National Seashore in Marin County, California, about 30 miles north of San Francisco. For many years prior to National Park Service acquisition, the site was headquarters for the Bear Valley Ranch. Natural features include the riparian environment of Bear Valley Creek; Douglas Fir forest; mixed deciduous woods; open meadows and grassland; and a section of the San Andreas Fault zone. Cultural history of 200 years of Mexican and American ranching operations has impacted the natural environment in the forms of ranch buildings, pasture fencing, grazing, road building, utility installations, introduction of exotic plant and animal species, etc. While the National Park Service has eliminated or mitigated much of this impact, providing for visitor use has had its own impacts in terms of restrooms, parking lots, signs, and other facilities. A one-mile loop trail runs through the area and takes users into and amongst all of these features, including an operating Morgan Horse Farm and a native Coast Miwok Indian village that is being constructed as a center for interpreting the life and culture of these nearly extinct people and their reverence for and relationship to the natural world. Communications, parking, restrooms, water, sales literature, and emergency services are available at the beginning and end of the trail.

The overall purpose of the site and its attendant program, discussed as methodologies, is to provide an opportunity for people to examine and come to an awareness, understanding and appreciation of the physical and biotic world in which they live, as well as their own place in the relationship to that world.

Specific objectives for the site are:

1. To encourage visitors to experience several different types of environments and physical and life processes by walking a trail that winds them in and out of a variety of areas and processes.

2. To make several stops along the way to observe more closely, to question, to make experiments, to become physically involved with the resource.

3. To provide a demonstration area that can serve as a model of other environmental study areas in other places.

4. To encourage greatest use of the area and program by making that use as accessible and easy as possible.

Target audiences for the program are, most specifically, school classes K-12 from throughout the San Francisco Bay Area. General visitors, however, are also welcome and encouraged to use the area.

Methodologies for promoting use and using the area are as follows:

1. Teachers throughout the Bay Area are informed of the site and program via letter, flyer, school district newsletters, etc.

2. Teacher workshops are conducted to train teachers in the use of the site/program.

3. Teachers are supplied with handbooks and students with workbooks containing general background information, specific site information, and activities to be conducted, the latter two keyed to posts along the trail.

4. Pre-site and post-site studies are recommended in addition to on-site activities.

5. Teachers conduct their own classes in the area, although a National Park Ranger does give an orientation talk on-site, prior to use if so requested.

Site and trail maintenance funding is achieved through the regular National Park Service budget; teacher and student booklets are provided by Coastal Parks Association, a cooperating association assisting the Service in interpretive, scientific and educational programs; all other costs, such as transportation, equipment, etc., are provided by the user group.

There has been discussion and some planning for creating additional NESA sites in Point Reyes in the future. Hopefully such a site could be created for each major ecosystem in the park.

(December 1976)

POINT REYES ENVIRONMENTAL ENVIRONMENTAL EDUCATION CENTER (CLEM MILLER ENVIRONMENTAL EDUCATION CENTER)

Chief Park Interpreter, Point Reyes National Seashore, Point Reyes, California 94956; (415)663-1093. Camp Manager: (415)669-1521.

Purpose:

The Point Reyes Environmental Education Center was developed in the 1973-74 school year for the following purposes:

1. To provide an overnight, outdoor classroom resource where students can develop an awareness, understanding, and appreciation of environment: what it is and how it functions.

2. To provide a facility where workshops can be conducted to encourage and help prepare teachers and other leaders to teach environmental education as a dynamic, continuing, integral part of their curriculum.

3. To develop a model environmental education center that can be copied by other organizations as well as directly serve local communities.

Location:

The Center is located on the former Laguna Ranch in Point Reyes National Seashore, western Marin County, California, about thirty miles north of San Francisco. It can be reached by taking the road north of park headquarters that leads to Limantour Natural Area.

Facilities:

A series of eleven permanent 8-man tent platforms with tents house both students and teachers. Participants provide their own sleeping bags and pads. Tents are not heated or lighted.

Groups provide and prepare their own meals in the kitchen, which contains a large stove, refrigerators, sinks, lighting, large pots and pans, and limited utensils.

A large, remodeled quonset building houses the kitchen, first aid room, and dining/classroom area. The quonset is heated by a wood stove and, other than the kitchen, lighted by kerosene lamps.

Modern restrooms with showers are provided in a separate building.

The Center also contains a small library, film and slide projectors, and a variety of other study materials and teaching aids.

Resource:

Once at the Center, all of Point Reyes becomes a natural and cultural teaching resource. Numerous trails radiate from the camp and lead to or through a wide variety of environmental study sites including the forested valleys and hilltops of Inverness Ridge, brushy uplands, grasslands, meadows, sandy and rocky ocean beaches, tidepools, fresh and salt water marshes and estuaries. Either individually or in small groups, students can walk through or study in many environments, some relatively undisturbed by man, almost wilderness, others illustrating man's history on the Point Reyes peninsula, including Indians, explorers, and ranchers. The entire resource is ideal for teaching and interpreting the nature of and man's interdependence with the total environment.

Camp Manager:

The Center has a resident manager employed by the National Park Service. The Camp Manager teaches in teacher workshops, greets and orients student groups using the Center, assists teachers with questions or problems relative to the facility or resources, provides emergency services, and maintains the camp. He also handles camp and workshop reservations, and enforces the rules, regulations and procedures of the Center and Park.

While the Camp Manager will assist in solving logistical and teaching problems as time permits, it is the responsibility of teachers and groups to do their own teaching, meal preparation, housekeeping, final cleanup, discipline, transportation, etc.

Who Can Use the Center:

Requests for use of the Center will be honored, on a first come - first serve basis, from any school beginning or conducting an environmental education program, provided the following criteria are met:

1. The Center is used for environmental education, as opposed to recreation purposes;
2. A teacher or group leader for every 25-30 students has completed the Teacher Workshop given at the site under the direction of National Park Service personnel.
3. Total group size is no smaller than 25 nor larger than 90.
4. Adult personnel, e.g. parent, volunteer, school nurse, etc., are provided at the ratio of one adult per 10 students.

Fees:

A fee of $2.00 per day per person will be charged all teachers and students using the camp during workshops and on-site activities.

For workshops, a $.50 registration fee is charged to cover the cost of handouts.

Administration:

The Center is cooperatively operated by the National Park Service and Coastal Parks Association.

The Coastal Parks Association is a non-profit organization which sells literature and other materials on the park and operates certain programs which assist in the overall interpretation and visitor use of the park. All contributions made to the Association programs are tax deductible. Profits from the sale of literature and other interpretive materials are used to assist in the scientific and education activities of the National Park Service.

More information about the Association is available from: Coastal Parks Association, Point Reyes National Seashore, Point Reyes, California 94956.

(December 1976)

ERIC DOCUMENT:

The Strands Walk. ED 125 855.

COMMUNITY EDUCATIONAL RESOURCES

John K. Gessel, Director; School-Community Services, Department of Education, San Diego County, 6401 Linda Vista Road, San Diego, California 92111; (714)292-3500.

Our overall purpose is to work with our community to develop curriculum materials that would not normally reach the classroom via a textbook. We develop multimedia teaching kits, coordinate conferences, and consult with school districts.

Our current activities have been focused upon energy education in the area of materials development and coordinating energy education conferences. Both of these efforts are then followed by in-service programs for teachers.

The funding for these activities comes primarily from local and state taxes, but our local utility has made substantial contributions for energy education. We evaluate the frequency of use by teachers of our materials once every three years, and that survey shows about 50% of the teachers use our materials at least once a year.

Our plans for further development of environmental education materials include four teaching kits about the natural resources of San Diego County, a kit for primary teachers about our zoo, and a kit for teachers to use before they take their students for a week to the outdoor education program for sixth graders.

---John K. Gessel
October 1976

1973 DIRECTORY REFERENCE: pp. 33-34

1975 DIRECTORY REFERENCE: p. 9

TWENTYNINE PALMS OASIS NESA

Monument Headquarters, Joshua Tree National Monument, 74485 National Park Drive, Twentynine Palms, California 92277; (714)367-3444.

The Twentynine Palms Oasis NESA was established to provide a study area in which students could experience and learn about the environmental factors that contribute to the unique ecology of a southwest oasis.

Specific objectives include understanding of the factors that result in the Oasis location, recognition of floral and faunal adaptations that permit inhabitation at this site, appreciation of the intricate interrelationships that help the Oasis environment to thrive, and awareness of man's historical, contemporary and future impact on this type of community.

The study area is utilized by the general public and organized groups, including scheduled primary and elementary school classes. Teachers and rangers work with school groups; the general public has access to a trail guide that courses through the area.

There is no special funding and the study area is maintained out of operating funds. There are no specific projects/programs planned for the future. Due to travel limitations the study area's use by school groups has been curtailed over the last year.

(December 1976)

ENVIRONMENTAL LIVING PROGRAM AND ENVIRONMENTAL STUDY AREA

For information on the Environmental Education Program contact: Daniel F. Card, Environmental Education Specialist, Division of Interpretation, Yosemite National Park, P.O. Box 577, Yosemite National Park, California 95389; (209)372-4461 Ext. 61. For specific information on the Environmental Living Program at the Yosemite Pioneer History Center, contact: William F. Dengler, Wawona District Naturalist, Wawona Station, P.O. Box 27, Yosemite National Park, California 95389; (209)375-6321.

ENVIRONMENTAL LIVING PROGRAM

Purpose:

The purpose of the ELP is for students to understand and appreciate their present way of life by recreating a community of the past.

Objectives:

Students role-play the lives of pioneers for a twenty-four hour period to experience the special problems pioneers had and the differences in their day-to-day lives. Each student performs some of the necessary tasks to survive as the pioneers did, including wood stove cooking, candle and soap making, and home crafts. They organize town meetings and establish guidelines for their town.

Target Audience: Fifth and sixth graders.

Methodologies:

Teachers wishing to use the Pioneer Yosemite History Center at Wawona are required to attend a workshop in the fall to familiarize themselves with the available facilities. The teachers learn the skills and perform the tasks they will later teach their students. The workshop facilitators and teachers discuss the philososphy of living history and how to bring the past to life in the classroom. Throughout the year, students prepare for their visit to the past. They make costumes and quilts, learn the skills they will later use, research the history of Yosemite pioneers, and begin to develop a pioneer frame of mind. In the spring, classes come to the Pioneer Yosemite History Center for their debut as pioneers.

Materials:

A booklet containing the history of the buildings at the Pioneer Yosemite History Center, instructions on pioneer skills and crafts, and mouth-watering recipes is available for teachers at the fall workshop.

Project Evaluation:

Teachers discuss their reactions to the program at the end of the teacher's worshop.

Plans for the Future:

Continuation of the ELP at the History Center and a teachers' workshop in the spring. Development of a Living History Program for the Miwok Indian culture.

ENVIRONMENTAL STUDY AREA

Purpose:

The purpose of the ESA program is for students to examine different environments, at home and in Yosemite, looking for principles of survival which both have in common.

Objectives:

The program at Yosemite demonstrates the similarity in environments through parallel investigations in the home environment and in the Park. Through a process of investigations on their own, the students come to realize that the Environmental Strands are the principles of survival which all environments share.

Target Audience: Sixth through ninth graders.

Methodologies:

Teachers receive the ESA booklet containing pre-site, on-site, and post-site tasks for three major areas of study: human history, wildlife, and vegetation. This booklet contains specific instructions to the teachers for the implementation of the tasks. Pre-site tasks investigate home environments through various activities related to the three subject areas. It also prepares the student for a trip to Yosemite's natural setting. The on-site tasks explore Yosemite's environment while at the Park. The follow-up post-site activities at home tie together concepts (Environmental Strands) learned in both environments. Throughout the learning process, the students do the work themselves. They gather information in small groups and present it to the rest of their class.

Materials Produced:

Environmental Study Area booklet containing tasks for the students and instructions for the teacher. The booklet is not printed yet.

Project Evaluation:

Verbal and written comments from the teachers.

Plans for the Future:

A college-accredited teachers' workshop will be offered in the early spring at Yosemite. It will help familiarize the educator with Yosemite and the Environmental Strands concepts and the activities developed for the program.

(December 1976)

THORNE ECOLOGICAL INSTITUTE

Joan E. Martin, Director of Education, Thorne Ecological Institute,
2336 Pearl Street, Boulder, Colorado 80302; (303)443-7325.

Thorne Ecological Institute is a private, non-profit, non-endowed organization founded in 1954 to encourage ecological research and to serve as a catalyst in environmental problem solving. Thorne seeks to advance man's understanding of emerging problems by applying ecological principles and concepts, showing the nature of alternative approaches and solutions, and recognizing the role of individual values and responsibility. The current areas of emphasis include:

- developing and implementing decision-making processes which integrate different disciplines and concerns
- identifying and analyzing emerging issues in a changing society
- designing and testing future approaches as considerations become more complex and long-range-oriented
- developing and evaluating professional and management techniques and communicating them to others

This is accomplished through institutes, seminars, workshops, training programs, research, environmental planning, impact assessment, biophysical and socioeconomic inventories, management consulting and publication. The above are funded by grants, contributions, fees, and contracts, all for a specific project rather than in large unspecified amounts.

Thorne targets the majority of its educational programs for adults. This is not only because of the level of environmental problem solving analysis undertaken, but also because relatively few environmental educators concentrate on the adult population, those who are currently making decisions and policies. In all programs, Thorne works to provide alternatives to existing and institutionalized approaches. This includes educational approaches. Since educating adults requires more than the factual exchange prevalent at large conferences, professional meetings where papers are given, and luncheons with guest speakers, Thorne is currently developing and improving upon techniques for affecting change in adults.

In the summer of 1965, Thorne designed and implemented the National Seminar on Environmental Arts and Sciences (SEAS). The purpose of SEAS was to offer a unique approach to environmental problems by developing an understanding of the concepts and principles of ecology among the nations' top decision makers. Participant response has led this seminar to continue annually in Aspen with different themes and emphasis as the concerns and issues change. This seminar has provided the basis for an increasing number of adult education programs.

While SEAS provides an overview of the art and science of ecology, other seminars and workshops concentrate on more specific issues, specific impacts, and specific problems. They include:

SEAS Workshops: These workshops are offered for decision-makers who already have an understanding of ecological principles and who want to apply them to topics such as corporate responsibility, law, or the economy.

Resource Development Impact Seminars: These seminars focus on exploring impacts, developing a better understanding of impacts, and applying new perspectives and solutions to participants' problems. The seminar revolves around the impact of such resource development as timber management, increased mining operations, or recreational development in rural environments. Participants include anyone facing, dealing with, or acting upon these impacts.

Corporate Seminars: Thorne sponsors seminars to meet specific corporation needs. The seminar may be similar to any of the above seminars or it may be specially designed. Seminars have been conducted for companies such as Public Service Company of Colorado and AMAX Inc.

Local Problem Solving Workshops: While most of Thorne's programs are designed to have national or regional significance, these programs are designed for facilitating in local problem solving. They provide a medium for individuals to analyze their problems and to arrive at possible solutions. These local problems include such topics as the trade-off between economic and environmental problems, conflict between city and county policy, and lack of land use planning.

In addition to the seminar/workshop format, Thorne offers longer ongoing institutes. In 1963 Thorne began the Rocky Mountain National Park Environmental Seminars to provide a series of week-long courses on ecology to the general public. In the spring Thorne will offer a series of courses on the present state of the art of environmental impact assessment.

Although all education programs have some "experiential" aspect, Thorne also offers programs which emphasize the experiential. They include a skiing workshop, a rafting trip down the Green River, and a wilderness outing.

Thorne's educational programs have not just been limited to adults. For sixteen years, Thorne sponsored the Boulder Natural Science School, an outdoor nature study program for children in Boulder, Colorado. Thorne also has offered a series of week-long environmental education programs for junior high school students in Rocky Mountain National Park called "Eco-Explorations." In addition, under contract with the Federal government, Thorne continues to operate Youth Conservation Corps camps in Rocky Mountain, Glacier, Kings Canyon-Sequoia, and Yosemite National Parks.

---Joan E. Martin
October 1976

1975 DIRECTORY REFERENCE: pp. 292-293

A COMPARATIVE EVALUATION OF VALUES-ORIENTED AND NON-VALUES-ORIENTED ENVIRONMENTAL EDUCATION MATERIALS

Douglas Supreka, Project Director; Social Science Education Consortium, Inc., Educational Resources Center, 855 Broadway, Boulder, Colorado 80302; (303)492-8155.

This study, funded under P.L. 93-278, is designed to assess experimentally the effectiveness of several commercially published and nationally disseminated environmental education curriculum materials and to obtain teacher-student evaluations of these materials. The study's major purpose is to determine the extent to which particular values-oriented and non-values-oriented resources increase students' awareness of environmental issues and facts, encourage them to have positive attitudes toward environmental protection, and build their perceptions of being able to affect environmental policy and to control their environment. A second purpose is to assess the relative effectiveness of the values and non-values treatments with several dichotomous groups of students as determined by differences evidenced in the following characteristics: prior knowledge of environmental information, internal-external locus of control, faith in human nature, and psychological deprivation. The third purpose is to gather teacher and student comments on the strengths and weaknesses of the materials.

The experimental aspect of the study will use a modified "non-equivalent control group design." The sample will consist of 16 secondary social studies teachers and approximately 600 high school students in the Denver, Colorado area. The values and non-values teachers will include eight who are experienced and eight who are inexperienced in teaching environmental education.

Appropriate, reliable, previously developed instruments will be used on a pre-test post-test basis to measure students' progress relative to the three dependent variables stated above in the major purpose. Multiple analysis of covariance will be used to test the significance of the mean between-group differences and the differences related to the dichotomous groups mentioned in the second purpose. Attitude scales and open-ended questions will be used to obtain the student and teacher evaluative data on the curriculum materials. The results of both aspects of the study will be published in several professional sources. It is hoped that these results will provide teachers and developers with useful information to help them construct and implement more effective environmental education programs.

---Douglas Supreka
October 1976

1973 DIRECTORY REFERENCE: pp. 47-48

1975 DIRECTORY REFERENCE: p. 11

ERIC DOCUMENTS:

1. Boulder Experiments Scrapbook. A Description of How the Student and Professional Staff of the S.A.D.M.E.S.S. Project Planned and Put On a Community Environmental Fair. ED 081 707

2. SADMESS. Student Assisted Development of Materials for Environmental and Social Studies. Final Report. ED 083 072
3. Boulder Experiments: An Environmental Fair. Profiles of Promise 24. ED 091 260

ENERGY AND SOCIETY: INVESTIGATIONS IN DECISION MAKING

Biological Sciences Curriculum Study, P.O. Box 930, Boulder, Colorado
80302; (303)666-6558.

Energy and Society: Investigations in Decision Making is designed as a nine-week instructional unit for high school, college, and adult students. During the course of the unit, students discuss certain basic physical laws related to energy, explore some of the possible consequences of energy decisions, and formulate an energy-related question that they then investigate. In the context of each student's question, seven categories of factors affecting energy decisions are considered. These categories are politics, economics, technology, attitudes, health and safety, environmental impact, and physical laws. Through consideration of empirical data and through examination of personal and community values, students attempt to arrive at an energy "recommendation" for their community. The issue is finally carried one step further, to the consideration of national and world energy futures.

The project was funded by the U.S. Office of Education. Materials include Student's Handbook, Teacher's Guide, a set of daylight slides, a film loop, a card set, and The Energy Management Game. The program will be available in Spring 1977, from Hubbard Scientific Company.

(November 1976)

1975 DIRECTORY REFERENCE: pp. 149-150

ERIC DOCUMENTS:

1. Investigating Your Environment. Student Handbook. ED 116 901
2. Investigating Your Environment. Teachers' Handbook. ED 116 902
3. Me and My Environment Formative Evaluation Report 5. Year 3. Assessing Student Abilities and Performances. ED 122 464
4. Me and My Environment Final Formative Evaluation Report. A Synthesis of Findings. ED 122 465
5. The Environment: Some Viewpoints (Student Resource Book I). ED 123 038
6. The Price of Progress (Student Resource Book II). ED 123 039
7. Food for Humanity (Student Resource Book III). ED 123 040
8. Human Population (Student Resource Book IV). ED 123 041
9. Solid Waste (Student Resource Book V). ED 123 042
10. Pesticides (Student Resource Book VI). ED 123 043
11. Land Use (Student Resource Book VII). ED 123 044
12. Water Quality (Student Resource Book VIII). ED 123 045

THE ENERGY SOURCES - A NEW BEGINNING

Elwood E. Miller, Associate Director, Educational Media Center, University of Colorado, Boulder, Colorado 80309; (303)492-7341.

"The Energy Sources - A New Beginning project is currently in its second phase, under funding from the U. S. Office of Education. The first project was designed primarily to produce materials about alternative energy sources. A second grant, currently in operation, was funded to design utilization patterns and models for the information developed for the first grant.

The materials developed consisted primarily of two separate sets. One is a set of 16mm motion picture films, each 28 minutes in length under the general title for the series of "Energy Sources - A New Beginning" and includes nine separate films titled: Energy Sources, A Matter of Policy; Geothermal Power - The Great Furnace; The Sleeping Giant - Coal; Solar Power - The Giver of Life; Wind Power - The Great Revival; Oil Shale - The Rock that Burns; Tar Sands - Future Fuel; Nuclear Gas Stimulation - Tapping our Natural Heritage; and Nuclear Energy - The Great Controversy.

The ninth film "Nuclear Energy - The Great Controversy" is being reproduced with an additional grant and with some suggestions from the U. S. Office of Education. That film will be available about the first of January, 1977.

Also produced under the initial grant were a set of study guides for each of the nine films plus a teachers guide for the entire series. These materials are available from the University of Colorado at Boulder--both films and the teaching guides.

Produced during this same effort but not under the contract of the U. S. Office of Education is a set of sound filmstrips covering the same content but aimed at the junior high school science level as contrasted with the films themselves which are adult education and high school films. All of these materials are now available from the Educational Media Center at the University of Colorado.

All of the film materials were validated with high school science classes before final production of each film (or filmstrip) and are now in use in a series of adult education seminars as well as high school classes in the State of Colorado. Our future plans include an effort for national dissemination of these materials during the 1977-78 academic school year. An additional proposal is being prepared by this office currently to insure national distribution.

---Elwood E. Miller
September 1976

1975 DIRECTORY REFERENCE: pp. 290-292.

KEEP COLORADO BEAUTIFUL

Mrs. Beverly Fleming, Executive Director, Keep Colorado Beautiful Inc., 4260 East Evans Avenue, Denver, Colorado 80222; (303)757-2272.

Purpose: To coordinate efforts state-wide in a broad educational program in the areas of litter prevention, solid waste problems, conservation of natural resources, and beautification.

Audience: All public and parochial schools in Colorado, service organizations and other groups, clubs, churches, government agencies, businesses, individuals.

Recent Projects: '76 Litter Revolution (state-wide cleanup and beautification campaign in which 108 communities participated), Explo '76 (Denver metro area career fair), operation of Ecology Bus in rural Colorado junior high schools, workshops on solid waste management, awards programs for schools and communities, participation in Clean World International Conference in Dublin, Ireland.

Materials: Free environmental films; fact sheets on solid waste, air pollution, water pollution; recycling directory; curriculum suggestions for teachers; tips for organizing a community cleanup; litter bags; trash bags; decals for trash cans, cars, etc; speakers bureau.

Funding: Partially funded by Colorado Department of Natural Resources, partially by private donations.

Future Plans: Implementation of the Clean Community System (CCS) as developed by Keep America Beautiful. The CCS is an on-going, community-wide, in-depth program designed to fight litter and solid waste problems, conserve natural resources, and beautify the community. Through the CCS the sources of litter in the community are identified, a program of continuous public education at all levels is implemented, litter-control ordinances are up-dated and enforced, and sanitation technology is improved. The CCS is the first national program which seeks to reduce litter through behavioral science techniques applied in a logical and orderly manner by a citizens' committee at the local level.

---Theresa Cooley
Secretary
September 1976

1975 DIRECTORY REFERENCE: pp. 294-295

ENVIRONMENTAL EDUCATION CENTER

Larry Schaefer, Director; Area Cooperative Educational Services,
800 Dixwell Avenue, New Haven, Connecticut 06511; (203)562-9967 or
for Connecticut residents: 1-800-922-1567.

Objective: To promote the implementation of environmental education into the school and community programs.

Specific Objectives:

1. Curriculum Adoption/Adaption/Implementation
2. Teacher In-service and Pre-service Training
3. Information Dissemination
4. Program Development

Target Audience:

1. Public and Private Schools in Connecticut, grades K-12.
2. Community Organizations.

Methododology:

1. Operate an EE Curriculum Library
2. In-service Workshops for Teachers
3. Operate EE Resource Center
4. Operate EE Media Loan Library
5. Disseminate monthly newsletter
6. Curriculum Development Programs
7. Computer Based Resource Units in EE

Materials Produced:

1. Monthly Newsletter (included in membership).
2. Land Use Decision Making Kit: A set of seventeen self-instructional audio-tutorial units on land use. Units include: Map Reading, Aerial Photography, Geosystems, Hydrosystems, Inland Wetlands, Coastal Wetlands, Uplands, Open Space, Planning for People, Cultural Systems, Local Implementation, State and Federal Implementation, Economics of Land Use, Synthesis: Buildability, and Synthesis: Attractiveness. Total Kit costs: $200.00. Individual units range from $18 to $30.

3. ECO-KIT: A set of six self-instructional audio-tutorial units. Unit titles include: Introduction to Ecology; Water Pollution; Air Pollution; Noise Pollution; Population I and Population II. The cost is $30.00 for six units.

4. An Introduction to Population, Environment and Society: A Teacher's resource manual. Cost: $6.00.

5. Catalogue of EE Resources (included in membership - not for sale).

Funding Sources: Membership; Title IV Part C; Sale of Materials; Rental of Films.

Publications:

1. Audio-Tutorial Instruction Invades City Hall

2. "A Self-Instructional Approach to Environmental Decision Making--Focus on Land Use", *Journal of Environmental Education* (in press).

3. "Land Use Decision Making: A Community Issue", *Current Issues in Environmental Education - 1976*.

4. "Community Education in Land Use Decision Making: New Instructional Materials", *Current Issues in Environmental Education - 1975*.

5. "Education in Land Use Decision Making", *Present and Future of Coasts*, Proceedings of the First Annual Conference of the Coastal Society.

Plans for the Future:

1. Continued development of in-service programs and resource center.

2. Development of a notebook of environmental education infusion ideas and activities for each grade of subject K-12.

3. Validation and production of the simulation game, PLANFAM.

---Larry Schaefer
October 1976

1973 DIRECTORY REFERENCE: pp. 64-65

1975 DIRECTORY REFERENCE: pp. 13-14

ERIC DOCUMENT:

An Introduction to Population, Environment, and Society. A Teachers' Resource Manual. ED 090 063

WORKSHOP ON LAND USE AND WATER SUPPLY ISSUES

Orville M. Tice, Associate Director, Programs; Yale University, School of Forestry and Environmental Studies, Sage Hall, 205 Prospect Street, New Haven, Connecticut 06511; (203)436-0440.

The overall purpose of this mini-grant is to provide public information on the issues involved in the proposed disposal of "surplus" water utility lands. The state of Connecticut imposed a two-year moratorium on land sales and created a council to examine specific issues. The School has been called upon to bring its technical and professional skills to bear in this regard.

The specific objectives of the School's Task Force include the preparation of research reports in the areas of public health, land use, economics, law, recreation and related areas.

The target audience for a public forum and ensuing workshop are members of state and local government, the water utilities, planning agencies, conservation organizations and members of the public at large.

The methodologies to be employed are essentially white papers in specific research areas leading to case-study scenarios to be presented in the Spring.

Materials produced will include a workbook of water-related facts and case-study scenarios.

A funding source, in addition to the U.S. Office of Education, is the Anne S. Richardson Fund.

Project evaluation will be made by an advisory board.

Plans for the future include an all-day forum held in December and a workshop to be held in the early Spring. The principle contacts on this mini-grant are Associate Professor Arthur P. O'Hayre, Yale School of Forestry and Environmental Studies, Marsh Hall, 360 Prospect Street, and Orville M. Tice, Associate Director, Programs, Yale School of Forestry and Environmental Studies, Sage Hall, 205 Prospect Street. The School's Task Force coordinator is Sarah Bates, Yale School of Forestry and Environmental Studies, Sage Hall, 205 Prospect Street.

---Orville M. Tice
October 1976

GRIPIN AND SEE (SCIENCE, ENVIRONMENT, AND EDUCATION)

L. Jim Allen, Project Director, Appoquinimink School District, 4th and Main Streets, Odessa, Delaware 19730.

Principal staff: One director and one full-time secretary.

Principal originators: Dr. William B. Keene, Dr. Sadie S. Keen, and L. Jim Allen.

Date and place of initiation: July 1975, Appoquinimink School District.

Overall project purpose: To give each participant an acute awareness of the beauties and delicies of the environment.

Materials:

Materials produced: For grades 3, 6, and 9, Environmental curriculum materials have been developed and are in the process of being revised. Included is a slide-tape presentation, Interdependence, Earth Resources, and Population Dynamics.

Free materials: Brochure anticipated.

Materials produced that can be purchased: None.

New material being developed: Yes, for Grades 4, 5, 7, and 8: Energy, Recycling, and Quality of Life.

Additional materials being developed: None.

Present commercial association: None.

Material Implementation:

Number of schools now using entire set of materials: None now, will start January 1977; at that time there will be six schools.

Number of teachers having adopted all of the project materials: None now but in January 1977 there will be 19.

Total number of students using project materials: 423 starting in January 1977.

Names and locations of schools where the program materials are being used: Townsend Elementary School, Townsend, Delaware 19734; Silver Lake Elementary School, Middletown, Delaware 19709; Redding Middle School, Middletown, Delaware 19709; Middletown High School, Middletown, Delaware 19709; Broadmeadow School, 500 S. Broad Street, Middletown, Delaware 19709.

Teacher Preparation:

Consultive service available for teachers using the materials: Yes.

In-service education program for teachers using the materials: Yes.

Pre-service training program for teachers desiring to use the materials: Yes.

Kind of teacher preparation programs available: Graduate credit course being offered by the University of Delaware on developing environmental curriculum.

Availability of pre-service and/or in-service teaching materials for educators to use in preparing teachers: No.

Teaching materials commercially available: No.

Materials Evaluation:

No formal evaluation as of yet, but hope to have it in the near future.

Project Summary:

Program is under way at this time. Workshop started September 20, 1976.

Workshop: Environmental Education Curriculum Development.

a. 15 class, 3 graduate credit, University of Delaware.
b. Emphasis on 3, 6, and 9 grades.
c. 3rd grade: Interdependence of man to his environment.
d. 6th grade: Earth resources.
e. 9th grade: Population Dynamics, economical and environmental.
f. Field trips to: Bombay Hook Wildlife Refuge, Cape Henlopen, Marshes, Canal Fossil Beds, Lakes and Streams.
g. Members of workshop are teachers and administrators of all disciplines in grades 3, 6, and 9. No prerequisite required.

Plans for the Future:

To develop environmental curriculum units for all grades - 3-12; to develop field trip guides for field trips throughout State of Delaware.

Funding Sources:

E.S.E.A., Title IV, Part C; Delmarva Power and Light Company; University of Delaware, College of Marine Science.

---L. Jim Allen
October 1976

YOUTH CONSERVATION CORPS

The Youth Conservation Corps (YCC) is jointly administered by the Department of Agriculture-Forest Service and the Department of the Interior. Requests for information on the program should be sent to either of the following offices: Director, Human Resource Programs, Department of Agriculture-Forest Service, P.O. Box 2417, Washington, D.C. 20013; or Director, Office of Manpower Training and Youth Activities, Department of the Interior, Washington, D.C. 20014.

The YCC program has three main objectives. They are as follows:

1. To provide gainful employment of America's youth, ages 15-18, during the summer months in a healthful outdoor atmosphere.

2. To provide an opportunity for understanding and appreciation of the Nation's environment and heritage.

3. To further the development and maintenance of the natural resources of the United States by the youth who will ultimately be responsible for maintaining and managing these resources for the American people.

The Environmental Awareness program is integrated with work projects as much as possible. At least 10 hours every week are spent dealing with the specific goals and objectives of the Environmental Awareness program. These goals are:

1. To increase awareness of ecological principles that govern the environment.

2. To better understand man's social, economic, historical, cultural and physical relationships with the environment.

3. To increase awareness of the wide range of attitudes and personal values relating to the environment.

4. To assist each participant in recognizing the effect of a personal environment ethic on the environment.

5. To experience problem-solving and decision-making processes which are applied to environmental management concerns.

6. To increase understanding of the overall benefits of the YCC work program on the environment.

The 8-week summer YCC program is a very short time to accomplish these goals. Individual camps in all States develop most of their own methodologies for involving the youth in environmental awareness. There are two publications that assist them in their efforts; both of these are available from the Government Printing Office (GPO):

"YCC Sourcebook for Environmental Awareness: Man and Natural Resources" GPO Stock #024-000-00822-3; $1.90 each

"YCC Pocketbook for Environmental Awareness: Man and Natural Resources" GPO Stock #024-000-00821-5; $1.65 each

These two publications are now being revised so copies are not available from this office. The 1976 editions are still available from GPO. The 1977 editions will be available by January 1, 1977.

We have also developed a film, "Hard Work and Good Times (The YCC Experience)", explaining the entire YCC program and the Environmental Awareness aspect. Copies are available at $95 each from: Southwest Iowa Learning Resources Center, 401 Reed Street, Red Oak, Iowa 51566.

YCC enrollees are employed to work on conservation projects in their own state. Environmental Awareness is an integral part of the work projects. The YCC is open to youth between the ages of 15-18 and applications can be obtained by writing to: U.S. Youth Conservation Corps, P.O. Box 2975, Washington, D.C. 20013.

Applications will be available after January 1, 1977, for the coming summer's program.

The Youth Conservation Corps was established in 1971 by Public Law 92-597 and receives yearly funding from Congress. It has been a very successful program and will continue to help serve the youth and Natural Resource Management agencies throughout the Nation.

---Jack W. McElroy
Acting Director of Human Resource Programs
Department of Agriculture-Forest Service
December 1976

POPULATION EDUCATION PROJECT

Elaine Murphy, Director, Population Education, Zero Population Growth, 1346 Connecticut Avenue N.W., Washington, D.C. 20036; (202)785-0100.

In 1966 Planned Parenthood-World Population held a symposium to discuss "Family Planning, Population Problems, and the Secondary School Curriculum" (PP-WP, 515 Madison Avenue, New York, New York 10022, 1966, free booklet). At this meeting, various demographers and educators pointed out that while population growth and its attendant problems impinge upon the lives and future of American children, the topic is rarely examined in the schools.

More recently, there has been considerable effort directed toward inclusion of sound population studies in school curricula, not only in the secondary schools, but from kindergarten through college.

Many population organizations consider population education an important focus for activities, as do several universities, professional associations, and leaders in educational change. ZPG has also responded to this call by providing speakers, films and materials for classroom use; by lobbying for increased federal funding in this area; and, through many of its chapters, by organizing and leading teacher-training workshops. An increase in school coverage of population topics has resulted, but usually such coverage still depends on the responsiveness of dedicated individual teachers rather than adoption of population education as a school system priority.

It is the latter goal -- institutionalization -- that is the focus of ZPG's current population education project, funded by the U.S. Office of Environmental Education and a private foundation. Our purpose is to go beyond providing assistance to those teachers who wish to include population in their classes; our purpose is to introduce or to expand population education in the public school systems of selected model states.

The list now includes Maryland, Delaware, New Jersey, Ohio, Florida, Michigan, New York, Colorado, and Iowa.

How does one go about "systematizing?" While there are some similarities in our approaches for all the states, ultimately the project must be designed specifically for each state. In most cases, we facilitate groups interested in population and environmental education to join forces in a cooperative venture. These groups usually include the State Department of Education, regional school systems, a university or college, local environmental or population organizations, and ZPG. Further support is provided by the Population Reference Bureau, Population Institute, American Association for the Advancement of Science, and other educational and environmental organizations. In many ways, ZPG's role is the identification and coordination of those individuals or groups dedicated to both protection of the planet and relevant classroom instruction.

Initially, we have contacted respresentatives of state and local school systems to inform them of our project, and have met with such officials to discuss what is available in terms of curricula, materials, audio-visual aids, and teacher-training. Because population is, or should be, an essential component of environmental education, working with state or local coordinators of environmental education has been an effective approach.

Following cooperative planning with the various interested parties, ZPG co-sponsors with them one or two day workshops for administrators, curriculum supervisors, and teachers throughout that particular state. The workshops provide both the motivation and the "know-how" so that the participants can conduct teacher training in population education upon their return to their home school districts. The multiplier effect of these workshops is supplemented by articles in national newsletters and through population education sessions at annual meetings of educational associations. For example, at the 1976 meeting of the National Science Teachers Association, ZPG and the Population Reference Bureau cooperated in a workshop attended by 150 teachers; in addition, 16,000 copies of population education materials were distributed.

Helping to bring these various groups, which have similar goals but separate structures, to a unified, well-defined, educational commitment is the heart of ZPG's population education project. In cooperation with other groups, then, we stand ready to provide assistance in terms of workshops, conferences, and follow-up consultation. Moreover, we are happy to loan a number of educational films for a nominal handling charge.

---Elaine Murphy
September 1976

NATIONAL WILDLIFE FEDERATION

John C. Stone, Education Coordinator, National Wildlife Federation,
1412 16th Street, N.W., Washington, D.C. 20036; (202)797-6800.

The Organization:

The National Wildlife Federation is a non-profit, non-government "grass-roots-type" organization dedicated to creating and maintaining a better environment with emphasis on the protection and preservation of wildlife.

The Federation represents some 3.5 million supporters composed of its members, which include subscribers to the Federation's various publications, and individual contributors. It has affiliate organizations in all 50 states, Puerto Rico, Guam, and the Virgin Islands through which it works on conservation and environmental problems.

The Federation serves as the focal point and spokesman for groups and individuals who share a common interest in nature in general, wildlife in particular, and the interrelationship of all living organisms with the earth. A tax-exempt organization, the Federation works primarily through educational means, pursuing a vigorous and influential program on behalf of resource conservation and environmental improvement.

History:

The Federation was established in 1936 during sessions of the first North American Wildlife Conference. The conference, summoned by President Franklin D. Roosevelt, was an initial step in mobilizing a national movement for restoring once abundant wildlife populations suffering the effects of environmental degradation, habitat loss, waste and neglect. The Federation was formed to provide leadership for all groups interested in the proper management of wildlife and natural resources.

Policies and Administration:

Policy of the Federation on conservation ideas is determined by delegates to annual meetings held in various regions of the country. The delegates are elected by National Wildlife Federation state affiliates.

Officers of the Federation and members of its board of directors are elected by these same delegates and serve without pay. Overall direction of the Federation's programs is provided by Thomas L. Kimball, Executive Vice President. Administrative direction is given by J. A. Brownridge, Administrative Vice President. Both men have long associations with the Federation.

Goals:

1. Adequate and enforced national and international water and air standards.

2. Adequate and enforced national and international solid waste management standards that will provide maximum recycling and re-use of natural resources.

3. Control of pests where absolutely necessary, preferably employing biological control or other means less harmful to the total environment than many of the chemicals presently in use.

4. Preservation of high quality wilderness and natural areas, outstanding wild rivers, scenic trails and estuarine areas.

5. Presentation of optimum numbers and variety of wildlife by designation of suitable areas as wildlife refuges, parks, seashores and lakeshores, recreation centers, and scenic rivers.

6. Scientific and professional, rather then emotional, management of wildlife, forest, and soil resources, rivers, lakes and oceans, and grasslands.

7. Protection of endangered wildlife and preservation of wildlife habitat.

Activities:

The Federation seeks to achieve its goals through a variety of activities which include:

1. Helping to develop and implement policy through liaison with Executive agencies in federal and state governments and by assembling and distributing information on Congressional natural resource activities.

2. Publishing a wide variety of material including "National Wildlife", "International Wildlife", and "Ranger Rick" magazines for a multitude of audiences as part of its educational efforts.

3. Working with schools by designing programs and providing audio-visual materials for use by teachers and students in achieving a better understanding of wildlife and environmental subjects.

4. Sponsoring a scholarship and research grant-in-aid program designed to assist doctoral and post-doctoral students engaged in specific environmental research.

5. Sponsoring meetings and conferences across the nation as part of the program to achieve greater public enlightenment and support.

(October 1976)

1975 DIRECTORY REFERENCE: pp. 297-299

ERIC DOCUMENTS:

1. Brine Shrimp and Their Habitat. ED 103 233
2. Change in a Small Ecosystem. ED 103 234
3. Color and Change. ED 103 235
4. Conservation Directory, 1974. ED 093 653
5. Conservation Directory, 1975. ED 110 324
6. Contour Mapping. ED 103 236
7. Differences in Living Things. ED 103 237
8. Fish and Water Temperature. ED 103 238
9. Genetic Variation. ED 103 239
10. Man's Habitat - The City. ED 103 240
11. National Wildlife, Special Issue: Endangered Species. ED 087 640
12. Nature Hunt. ED 103 241
13. Nature's Part in Art. ED 103 242
14. Oaks, Acorns, Climate, and Squirrels. ED 103 243
15. Outdoor Fun for Students. ED 103 244
16. Plant Puzzles. ED 103 245
17. Plants in the Classroom. ED 103 246
18. Sampling Button Populations. ED 103 247
19. Shadows. ED 103 248
20. Snow and Ice. ED 103 249
21. Soil. ED 103 250
22. Stream Profiles. ED 103 251
23. Tile Patterns and Graphs. ED 103 252
24. To Save the Earth. A Tool Kit to Our Environmental Quality Index. ED 068 337
25. Transect Studies. ED 103 253

MACROENVIRONMENTAL AND POPULATION STUDIES

Dr. Lucile Adamson, Program Chairperson; School of Human Ecology, Howard University, Washington, D.C. 20059.

The objectives of the program in Macroenvironmental and Population Studies are:

1. To promote in the student an understanding of:
    a. The nature, causes, and effects of major current environmental and population problems;
    b. Current trends toward the solution or exacerbation of these problems;
    c. Available options for individual or societal responses to these problems and trends; and
    d. The implications for the individual, for society, and for the ecosystem of the responses chosen.
2. To provide a nucleus of studies which, when supplemented by electives, will qualify the student for employment in the environmental or population area.

Depending on the specific course of study chosen, the graduate may find employment in environmental planning and enforcement agencies at the local, state, or national level; in the environmental compliance divisions of public utilities or industrial concerns; in projects for laboratory or field study or implementation of environmental or population strategies; in environmental or population education programs; in population planning programs; or in agencies or institutions concerned with easing the transitions experienced by specific environments or populations within changing cultures.

---Lucile Adamson
August 1976

EDUCATIONAL SERVICES

Jill R. Downs, Manager, Educational Services Department, Potomac Electric Power Company, 1900 Pennsylvania Avenue, N.W., Washington, D.C. 20068; (202)872-3570.

Potomac Electric Power Company (PEPCO) has available an Educational Services Program brochure, which lists and describes educational materials and services available free from the company to any teacher within the PEPCO service area. Individuals not within the PEPCO service area may wish to contact their local electric utility, as many power companies now distribute environmental materials.

---Jill R. Downs
October 1976

GULF ISLANDS NATIONAL SEASHORE

Gulf Islands National Seashore, Gulf Breeze, Florida 32561; Frank Walker, Chief Naturalist, Anne Castellina Dudley, Historian, (904)932-3307; Roy Hyatt, Director, Environmental Studies Center, (904)438-1140.

The Gulf Islands National Seashore environmental education program began in 1973. The overall purposes of the program are those of the NESA program:

> To introduce students to their total cultural and natural environment, past and present, and to help them realize they are a part of it.
>
> To develop in students an understanding of how man is using and misusing his resources.
>
> To provide an opportunity for students to work directly with environmental problem solving.
>
> To equip students to be responsible members of the world they are shaping and that is shaping them.

The specific objectives are met with the help of three sites located at the seashore. Santa Rosa Island beaches and Fort Pickens are both designated NESA sites. Blackbird Marsh Nature Trail is not yet a designated NESA.

The programs connected with these three sites are a cooperative effort of the Seashore and Escambia County Environmental Studies Center. Pre-site workshops for participating teachers are given jointly by the Studies Center and the Seashore. On-site activities are conducted by the teachers, the Studies Center, and the Seashore. Follow-up classroom activities are handled by the teachers.

The primary target audience for the NESA program is the fifth grade. Scheduling of the classes is arranged through the Studies Center in cooperation with the Seashore.

This year two new teachers guides were developed for the Santa Rosa Island Beaches NESA and the Blackbird Marsh Nature Trail. The Fort Pickens NESA guide, "A Comparative Study of Energy", is in preparation. Both booklets were prepared by staff members of the Studies Center and the Seashore under a grant from the Florida State Department of Education's Office of Environmental Education.

Positive response has been given by all classes who have participated in the program to date. The new teachers guides have been well received. One teacher's workshop has already taken place with a second workshop planned for January 1977. Future plans include printing of the Fort Pickens NESA guide and development of other NESA's throughout the Seashore.

(December 1976)

ENVIRONMENTAL EDUCATION FILM

Dan Kossoff, Director of Special Projects; WJCT Television 7, 2037 Main Street, Jacksonville, Florida 32206; (904)354-2806.

Our P.L. 93-278 effort is a project which is being designed to create an awareness of the complexities of solving environmental problems. It concentrates on interrelationships in environmental, social and economic situations. The project result will be a half-hour 16mm color film for classroom use (fifth and sixth graders) though it may also get television play. The classroom packet will include a role-playing game based on the problem-solving techniques students will learn from the film. A teacher guide will also be furnished. We feel that the film will be an entertaining one as well as a trigger for class discussion.

The entire project will be completed by June 1977 and the films and attendant materials will be available from the Office of Environmental Education.

In the past, WJCT produced a PBS Special of the Week titled "Come to Florida Before It's Gone." It was an hour-long satirical documentary which starred Stanley Myron Handleman, Pat Paulsen and Pete Seeger. It aired twice on PBS and is being used in many county and University systems. Copies of this film are available for preview and purchase.

---Dan Kossoff
October 1976

FORT CAROLINE'S NESA PROGRAM

Steven K. Sandell Sr., Chief, I&RM, Fort Caroline National Memorial,
12713 Fort Caroline Road, Jacksonville, Florida 32225;
(904)641-7155 or 641-7111.

Fort Caroline's NESA program has three objectives: To provide a resource that will enable local children to understand their environment; to relate their environment to the environment that was present in 1565 when the first French settlers arrived; and to use this understanding to help them shift behavorial patterns to reduce their impact on the environment.

Fort Caroline is one of four areas that compose the Duval County School System Environmental Education Program. Fort Caroline's ESA program serves more than 2000 children each school year. The ESA program is in addition to other on-site programs that involve an additional 6500 children. At present, the ESA program is oriented to the 6th grade student, but is going to be revised to work with 4th grade students also.

First-person involvement is the basic method of introducing the children to Fort Caroline. Through the use of Field Study Aids (which are paid by the school system), NPS staff, and classroom teachers, the students are led through the various ESA units of Fort Caroline.

The field guide represents previous staff input that leaned more toward natural history than the theme of Fort Caroline. The field guide will be undergoing revision this winter to realign the program to a historical theme and relate this theme to the natural history that was, and is, an important facet of the Fort Caroline story.

(December 1976)

CURRICULUM MODIFICATION THROUGH ENVIRONMENTAL STUDIES

Jay Jarrett, Director, Martin County Schools' Environmental Studies Center, 2900 N. E. Indian River Drive, Jensen Beach, Florida 33457; (305)334-1262.

Originally funded through ESEA Title III in August of 1972, the project is a hands-on, field-oriented program of environmental education centered around an estuarine area on Florida's east coast. Thirty-seven specific objectives were developed for grades K-8 and the program was conducted for all school children, public and private, in those grades in Martin County for three years.

Upon completion of the three-year operational program, analysis of pre- and post-test scores showed learner gains significant at a .01 level on a t-test of correlated means. The project was validated by the Office of Education Joint Dissemination Review Panel in December of 1975 and funding obtained through ESEA Title III/IV-C for a three-year demonstration/diffusion phase. The student-based program continues to operate on funds supplied by the School Board of Martin County.

Program methodology consists of the study in the home classroom of a package of teacher-produced learning materials (including conventional written materials, audio-visual units, puzzles, games, student activity books, etc.) followed by a once-a-year visit to the Center and physical environs for a hands-on reinforcement of the concepts presented in the classroom materials. The visit ranges in length from two hours for Kindergarten to two days for Grades 5 through 8.

Materials produced include nine packages of teacher- and student-based curriculum materials (one for each grade), 23 slide-tape instructional units, five sets of flash cards, card game, feltboard pieces and various other written materials.

Copies of all materials are available at reproduction cost from the Center. A complete program of training, technical assistance and impact assessment is available to schools wishing to adopt or adapt the program to their locale. Details may be obtained by writing the Center. Most costs of such assistance are borne by the Center through its ESEA IV-C budget until September 1978.

The Center operates throughout the school year and is open to visitation at all times by interested educators.

Future plans include adapting the materials to freshwater and terrestrial field sites, development of solar- and wind-energy curriculum materials, audio-visual testing techniques, expansion of overnight camping/learning activities, development of satellite centers throughout the county and the development of a foundation to finance the continuation and expansion of the program.

Resumes of the program have appeared in Florida Schools, December, 1974 and American Education, November, 1976.

---Jay Jarrett
October 1976

1973 DIRECTORY REFERENCE: pp. 111-112

1975 DIRECTORY REFERENCE: p. 23

UNION COUNTY ENVIRONMENTAL PROGRAM

Marie Y. Woodley, Project Director; Chairman of Science Department, Union County High School, 1000 S. Lake Avenue, Lake Butler, Florida 32054; (904)496-3551.

The purpose of the environmental program in Union County, Florida is to interrelate, involve and overlap as many students in as many content areas as possible. This is an on-going activity on the original environmental project report in ERIC. The rural county in north central Florida is unique in that three consolidated schools, K-3, 4-8, and 9-12 serve the area.

High School students conduct environmental sessions, one hour daily, for elementary students on the Elementary School outdoor classroom. This cooperative is scheduled as a regular class for credit for both groups of students. Mini-lessons from a teacher-developed book of environmental materials are utilized by high school students who include their personal innovations and mini-lessons and take complete charge of the students. Both groups of students enjoy the project.

Another project, Environmental and Rural Practices, involves high school students in two other overlapping activities:

1. On property adjacent to the high school, Agriculture and Vocational students structured a board walk into a cypress dome which is used for instructional purposes in general science, biology and agriculture classes. Proximity of the dome lends to utilization in a regular class period.

2. A one-half acre plot on campus is used in the study of residuals of pesticides and herbicides on plants and in the soil. Results of this project presently are inconclusive due to a poor growing season last year, but better results are hoped for this year. The plot is divided into three plots - test (pesticide and/or herbicide applied), mechanical control (insects and insect stages controlled by hand) and control (natural plot). Students in Agriculture, Horticulture, Chemistry, Biology, and General Science are involved in this work.

All projects have been supported by state mini-grants and local support. Materials and mini-lessons are in process of development and will probably be available in Fall 1977.

---Marie Y. Woodley
October 1976

1975 DIRECTORY REFERENCE: pp. 170-171

PROGRAMS IN ENVIRONMENTAL EDUCATION, DADE COUNTY PUBLIC SCHOOLS

All inquiries relative to environmental education in Dade County should be addressed to: Harriet Ehrhard, Consultant, Science Education, Dade County Public Schools, 1444 Biscayne Boulevard, Miami, Florida 33132; (305)350-3126.

Environmental education in the Elementary school curriculum uses the process approach and is based on the strand idea developed by the National Park Service. Ecology in the Elementary School, a Dade County Curriculum Guide, contains ecological activities in science, social studies, mathematics and art. Twelve environmental media units with 36 individual lessons for grades 1-6, locally produced, are available to schools. Each lesson has a filmstrip and script along with appropriate learning activities and references.

An Environmental Education Center in Crandon Park on Key Biscayne has a two-day program for sixth graders who are transported daily to the site. Emphases are on the marine and land ecology of the area and the importance of maintaining a balanced environment. The Center, with a staff of three teachers, accommodates groups of sixty. During the summer months junior high students are scheduled for participation. Facilities at the Center are provided without cost to the School System by the Dade County Parks and Recreation Department.

The Everglades National Park is cooperating by providing instruction at the Shark Valley location for fourth graders, and in the Long Pine Key Environmental Study Area for sixth graders. Groups of sixty students are transported to the respective areas for one-day experiences. The Park personnel conduct workshops in the Shark Valley and the Long Pine Key areas for elementary teachers. Teachers must attend before they are scheduled to take children to the Park.

A camping program for sixth graders operates in the Everglades National Park during the winter months. Teachers are required to master certain skills before being accepted in the camping group. The Park and the schools work very closely in coordinating this operation. Children, as well as teachers, must be prepared for this experience. A section of the camping area is reserved for school use and Park personnel are assigned to work with the students. Some schools elect to have one groups camp an entire week, others divide the week in order to accommodate two groups. The program was begun with local funds and has been expanded through Florida's Environmental Education Mini-grants.

Another cooperative arrangement has been made with the Dade County Parks and Recreation Department for the use of the Vizcaya Nature Trails. Located relatively close to the center of the county, these trails show a beautiful hardwood hammock, a fresh water pond, a growth of mangroves and an unused moat that exposes natural strata for geological studies. Two teachers who are assigned to the Museum of Science schedule and conduct one-day study trips on the trails for groups of thirty.

Approximately twenty quinmester courses (nine-week units of study) related to ecology and/or environmental problems have been written for use in grades 7-12. Many of these combine science, social studies and language arts. Most junior and senior high schools offer several of these courses.

The South Florida Environmental Science Media Units are composed of 97 lessons with each having a filmstrip and audio tape, film, or video tape along with learning activities, references, pre- and post-tests. These are based on biological, physical and chemical aspects of the South Florida environment and were produced to be used primarily in grades 7-12.

Many environmental problems are presented in the Florida Series, Environmental Conservation, a social studies media program, for use in grades 7-12.

Mini-grants from the State of Florida currently are supplementing local funds in four projects: a school garden, a school greenhouse-nursery landscaping project, a multicultural experience through environmental activities for students from different backgrounds, and a county-wide in-service on "Energy and Economics" for secondary Science and Social Studies teachers.

A close relationship is maintained between the Dade County Public Schools and the various institutions of higher learning in the area. Many courses are offered by the colleges and universities to answer the needs of Dade County instructional personnel. Workshops of various nature are given by the county throughout the year to supplement and facilitate the emphases on environmental education.

Several schools have recycling collection depots on their school grounds. The majority of the schools have special environmental projects, either through their service clubs or through class activities, and participate in countywide efforts such as the Dade Clean County Committee.

Environmental Education in Dade County has an Ecology Advisory Committee which was formed in 1970 to assist in planning curriculum developments and to provide consultant services on specific problems. Representatives from government agencies, universities, industries, teacher groups and other school personnel comprise the committee and cooperate in this endeavor.

Many of our curriculum materials are experimental and limited to distribution within Dade County; however, the quinmester courses are available through ERIC. A film, Under the Sabal Palm, produced and available through our Public Information Office, shows selected activities from the programs at Shark Valley, Long Pine Kay and the Environmental Education Center.

Staff, equipment, supplies and transportation for Environmental Education programs are budgeted yearly by the Dade County Public Schools. The Dade County Parks and Recreation Department and the Everglades National Park cooperate by furnishing facilities and personnel. Minigrants from the State of Florida Environmental Education Department have provided additional funding for specific projects at various schools. Many community agencies have offered services, workshops and field trips. Efforts of many people in various positions contribute to the effectiveness of our Environmental Education programs.

---Harriet Ehrhard
September 1976

1973 DIRECTORY REFERENCE: pp. 118-124

1975 DIRECTORY REFERENCE: p. 24

ERIC DOCUMENTS:

1. Man and His Environment: To Perceive and to React: Language Arts: 5111.13. ED 065 871
2. Your World and Welcome to It, Science (Experimental): 5314.03. ED 079 141
3. Life Science Through Field Experiences, Science (Experimental): 5311.14. ED 092 358
4. Human Ecology, Science (Experimental): 5365.60. ED 086 522
5. Human Ecology and the Health Dangers, Health Service Aide: 8007.03. ED 093 612

BROAD SPECTRUM ENVIRONMENTAL EDUCATION PROGRAM

Marjorie Ebersbach, Coordinator, Center for Environmental Learning, School Board of Brevard County, 615 Seminole Drive, Rockledge, Florida 32955; (305)636-6543.

Our 1975 program description is still appropriate. However, our materials list should be updated, as follows:

1. Primary CEL Blocks (Student Activity Cards and Teacher's Guide)
2. Intermediate CEL Blocks (Student Activity Cards and Teacher's Guide)
3. The Barrier Beach as an Ecosystem
4. The City as an Ecosystem
5. The Estuary as an Ecosystem
6. The Freshwater Marsh as an Ecosystem.

---Roger L. Henry
Training Specialist
August 1976

1973 DIRECTORY REFERENCE: pp. 102-104

1975 DIRECTORY REFERENCE: pp. 22-23

ERIC DOCUMENTS:

1. Teacher's Environmental Resource Unit: Consumer Resources Idea Manual. ED 067 300
2. Teacher's Environmental Resource Unit: Industry: Iron/Steel and Pulp/Paper. ED 067 301
3. Teacher's Environmental Resource Unit: The Automobile. ED 067 302
4. Teacher's Environmental Resource Unit: Energy and Power. ED 067 303
5. Social Studies Resource Units. ED 067 304
6. The Curious Entanglement of Law, Politics, and the Environment. ED 068 339
7. Man's Impact on the Environment: The Barrier Beach as an Ecosystem. ED 106 076
8. Man's Impact on the Environment: The Estuary as an Ecosystem. ED 106 077
9. Man's Impact on the Environment: The Freshwater Marsh as an Ecosystem. ED 106 078
10. Elementary Environmental Learning Packet K-3, Second Revised Edition. ED 119 960
11. Elementary Environmental Learning Packet 4-6, Second Revised Edition. ED 119 961
12. Man's Impact on the Environment: The Barrier Beach as an Ecosystem. Update. ED 119 962
13. Man's Impact on the Environment: The City as an Ecosystem. ED 119 963
14. Man's Impact on the Environment: The Estuary as an Ecosystem. Update. ED 119 964
15. Man's Impact on the Environment: The Freshwater Marsh as an Ecosystem. Update. ED 119 965

ENVIRONMENTAL EDUCATION EXCURSIONS

Floyd H. Clark, Coordinator of Science, Highlands County School Board,
426 School Street, Sebring, Florida 33870.

Overall Purpose:

Develop excursions for each grade level, K-6.

Methodologies:

Student-centered activities adapted to local situations, highly motivated by use of games, competition, and use of field trips.

Funding Source:

Mini-grants from State of Florida.

Plans for the Future:

Develop similar guides for kindergarten, first, second, and sixth grades. Already developed are guides for third, fourth, and fifth grades.

---Floyd H. Clark
October 1976

1975 DIRECTORY REFERENCE: pp. 175-176

COMMUNITY LEADERS' TRAINING IN ENVIRONMENTAL STUDIES

Rodney F. Allen, David E. LaHart, Project Staff; The Florida State
University, 426 Hull Drive, Tallahassee, Florida 32306; (904)644-5769.

Florida State University's Environmental Education Project has been heavily involved in training community leaders in environmental studies since the summer of 1974. This innovative program was funded for two years by Title I of the Higher Education Act of 1965.

The first year of the project focus was given to the development of teaching aids and materials specifically designed for community groups. For example, Girl Scout leaders developed environmental learning games and activities for Girl Scouts. The Apalachee Audubon Society developed materials designed to acquaint their membership with the wildlife found in North Florida. Thirty-five different "Ways" booklets were developed by community leaders with the help of the Project staff. These booklets were distributed by the adult leaders that designed and created the materials. A Florida-wide distribution was made with the cooperation of the Florida Office of Environmental Education.

Community leaders often gave their booklets to school teachers and other organizations or kept them for use as a family learning guide. Booklets, or specific units in the booklets, were reprinted by other organizations, several school districts, and even by state agencies. This "spin-off" is still continuing.

The second year of Title I support provided the opportunity to review the materials developed the previous year and regroup much of it into more functional packages. Activities developed by Garden Club Officers were combined with some materials developed by School Volunteers and by the Florida Association for Children Under Six (FACUS). This made a useful assortment of environmental activities and games for educators who work with children in pre-schools and in the primary grades. In addition, the Project staff conducted over thirty workshops to train new members of the organizations who had participated the first year.

This community environmental project was gratifying in several ways. A sizeable body of non-formal educators was reached through the Project. Non-formal educators make significant impacts on community learning; these educators now have environmental knowledge they can convey to their special audiences. The Project created a tremendous resource through its booklets. These booklets are available at local libraries and throughout the country through the Educational Resources Information Center.

The fact that the booklets and the ideas themselves are being copied speaks to their usefulness to educators in both the formal and non-formal educational sectors.

The impact is even greater than the ideas and activities represented in the four volumes of "Ways Booklets." The Project staff is often invited to participate in workshops and curriculum projects outside the geographical range of the original Project.

The two-year funding for the Project terminated in June, 1976, but the "spin-off" continues. Materials may be ordered through ERIC. Leaders in community groups may request short non-credit workshops through Florida State University's Center for Professional Development, Governmental and Community Services and credit institutes through the Center for Summer Sessions and Continuing Studies.

Ways to Environmental Education, Volume I, ED 100 734; Volume II, ED 103 325; Volume III, ED 106 213; Volume IV, ED 107 579.

Ways to Environmental Education, Final Report, ED 107 583.

Ways to Environmental Education, Final Report, ED 121 671.

---Rodney F. Allen
October 1976

1973 DIRECTORY REFERENCE: p. 129

1975 DIRECTORY REFERENCE: p. 25

NATURE'S CLASSROOM, OUTDOOR LEARNING LABORATORY

Henry Verges, Principal, Nature's Classroom, Hillsborough County Public Schools, Morris Bridge Road, Thonotosassa, Florida 33592.

Nature's Classroom seeks to provide all Hillsborough County sixth graders (10,000 plus) with learning experiences based on the philosophy of learning through direct experiences in the out-of-doors.

Nature's Classroom is located in Northwest Hillsborough County on 365 acres provided by the Southwest Florida Water Management District at no cost to the county. The acreage fronts on the scenic Hillsborough River and contains many different types of Woodlands, ranging from Cypress swamps to high sandy scrub oaks. The various types of soil, vegetation and resulting animal habitats lend themselves well to our curriculum.

The program at Nature's Classroom during the regular school year serves all sixth grade children within the public school system. Classroom teachers accompany their children and Nature's Classroom staff conduct the various activities. During the summer months the program is expanded to cover children age nine and older.

While sharing experiences together for one week, students often for the first time see their relationship to each other and to their environment. Once a child begins to understand his place in his environment, he begins to function as a contributor and not merely as a consumer.

The program is funded entirely by the Hillsborough County public school system.

Our staff has developed a curriculum guide which is given to each teacher early in the school year. This guide provides teachers with suggestions of activities both before and after attending Nature's Classroom.

In planning for the future, we hope to expand for individual study and observation by high school students.

The staff consists of: thirteen teachers, one secretary, three custodians, four bus driver teacher aides, and two teacher aide attendants.

In addition to our sixth grade Outdoor Education Program, we have the day care pre-delinquent program. Students who demonstrate delinquent tendencies are assigned to our school where they receive invididualized attention. This program is partially Federally funded. We have thirty students assigned, they remain in our school for a period of nine weeks, at which time they are reassigned to their regular school and we receive a new enrollment of students.

---Henry Verges
October 1976

1973 DIRECTORY REFERENCE: pp. 132-133

1975 DIRECTORY REFERENCE: p. 26

ENVIRONMENTAL EDUCATION FOR THE SECONDARY SCHOOL

Mary A. Hepburn, Director; University of Georgia, Department of Social Science Education, 210 Dudley Hall, Athens, Georgia 30622; (404)542-7265.

The quality of public environmental policy is dependent on the quality of interdisciplinary environmental knowledge obtained by the citizenry. Effective environmental decision-making requires conceptualizations, information and thinking processes which are drawn from the sciences and social sciences and applied to environmental problems.

In the secondary schools the subjects most closely related to environmental decision-making are science and social studies. At this level environmental education has been hindered by the separate development of science and social studies curricula in separate departments. Such fragmentation can be overcome without overturning the traditional departmental structure. This project supported by a grant from the U.S. Office of Education initiates a cohesive interdisciplinary program of environmental studies jointly implemented in social studies and science courses.

The project program contains the following features:

1. Development of common conceptual themes and thought processes in both science and social studies.
2. The application of sound knowledge components from the two subject areas to environmental decision-making.
3. Motivation and preparation for civic competence through problem-solving activities.
4. A feasible method of interdisciplinary innovation within the existing secondary school framework.
5. Shared planning by teachers, subject specialists, students and community groups.
6. Development of instructional materials in a modular form which can be integrated into secondary school science and social studies curricula.
7. Field studies which encourage students to focus their knowledge and skills on real problems in their own communities while gaining broad generalizable environmental perspectives.
8. Active involvement of county government officials and local civic groups in planning and providing for field studies.
9. Vertical and horizontal development and testing of a two-year program of environmental studies.
10. Careful evaluation of overall cognitive and affective effects on students.

The Gwinnett County (Georgia) School District as cooperator to this project is the site for planning and implementation. Teachers, supervisors and students are actively involved in the planning and testing of the program.

---Mary A. Hepburn
October 1976

ERIC DOCUMENT:

Primary Environmental Education Project: Teachers' Guide and Modules 1, 2, and 3. ED 098 084

FERNBANK SCIENCE CENTER

Dr. Lewis S. Shelton, Director, Fernbank Science Center of the DeKalb County Board of Education, 156 Heaton Park Drive N.E., Atlanta, Georgia 30307; (404)378-4311.

A new organization, Friends of Fernbank, has been formed through the cooperation of the Junior League of DeKalb County, the Georgia Science and Natural History League, the Fernbank Science Center staff, and the DeKalb Board of Education.

It is hoped that Fernbank Science Center will become a comprehensive science complex with attendant educational services for the interpretation and exhibition of all phases of the natural and physical sciences. The purpose of Friends of Fernbank is to support this endeavor.

Members of Friends of Fernbank will receive special consideration in the form of a newsletter, the "Fernbank Quarterly," planetarium discount, free film series, special children's programs, and others.

Gerry S. Briney, President
Friends of Fernbank
August 1976

1973 DIRECTORY REFERENCE: pp. 137-139

1975 DIRECTORY REFERENCE: pp. 26-27

ERIC DOCUMENT:

Fernbank Science Center Environmental Activities. ED 089 952

STEP (STUDENTS TOWARD ENVIRONMENTAL PARTICIPATION)

Ms. Pat Stanek, Environmental Education Specialist, National Park Service, Southeast Regional Office, 1895 Phoenix Blvd., Atlanta, Georgia 30349.

STEP is an environmental awareness/action program for high school students assisted by the National Park Service as part of its ongoing environmental education programs.

Objectives:

1. Build an awareness and understanding of themselves and of their relationship to the environment.
2. Communicate to others the awareness and environmental understanding.
3. Make a commitment to help others develop an environmental ethic.
4. Better the environmental quality of their communities by their direct action, in assisting these communities to meet growing environmental needs.

High school students participate in special training sessions to become resource persons for teaching elementary students on school grounds, "Environmental Learning Places." They inventory school teaching sites, develop site materials based upon school curriculum needs and their own training experiences, and train other high school students and teachers to conduct similar activities.

Cross-age and peer teaching, peer evaluation, communication strategies, discovery and investigative modes best characterize the educational tools of STEP.

A ten-hour STEP Environmental Leadership Training Course has been developed as a prototype. Regional and local adaptations are expected and encouraged. This course outline with supporting materials, certificates, and badges, has been developed by high school students with the assistance of National Park Service Interpretative personnel. Further environmental education curricular materials used in teaching are the NEED K-8 series. (National Environmental Education Development published by Silver Burdett Company, Morristown, New Jersey, in cooperation with the National Park Foundation).

STEP's environmental action programs are bounded only by the needs of their communities and by the energy of the members. STEP students are not pollution head hunters. They operate as Volunteers in the Park (VIP's) and environmental interpreters in National Park Service areas and in state and community parks; they investigate and monitor water quality and study issues surrounding environmental legislation; they testify at public hearings and lobby for needed environmental reform; they dialogue with industry when environmental violations are suspected.

No direct special funding sources are available for STEP. The National Park Service provides STEP development assistance as part of its ongoing environmental education program in all of its field areas. School districts and VIP's support further development or the STEP program as a part of its curricular and/or extra-curricular programs. State level or district grants often provide opportunities for additional STEP training programs.

STEP is a loosely structured umbrella organization in order to allow each group the maximum freedom to adapt the program to its own individual needs and those of its community. STEP has ongoing programs in some 22 states. Program evaluations are conducted by supporting institutions if so desired. Long-term continuity and continued involvement of STEP students are considered the best evaluation of the program.

Future plans do not include and have never included an organized effort to proselyte. Involvement spreads additional involvement. The National Park Service offers its land and personnel resources including volunteers (VIP's) to assist in support assistance.

Contact:

Chief, Interpretation and Visitor Services
National Park Service, Southeast Region
1895 Phoenix Boulevard
Atlanta, Georgia 30349

or

Chief, Interpretation and Visitor Services
National Park Service
Washington, D.C. 20240

---Pat Stanek
December 1976

CHICKAMAUGA-CHATTANOOGA NATIONAL MILITARY PARK

Chickamauga-Chattanooga National Military Park, P.O. Box 2126, Fort Oglethorpe, Georgia 30742; (404)866-9241.

Overall Purposes:

1. To encourage environmental awareness, appreciation and protection.
2. To relate environmental education to park themes of the Civil War and families who lived upon the battlefield.

3. To promote use of park environmental opportunities by the public and particularly local school systems.

Specific Objectives:

1. To stress appreciation and awareness of the environment to children, youth, and adults of all ages through use of the Environmental Study Area.
2. To expand the environmental education program locally.

Target Audience:

Local public and private schools and colleges, teachers, Scouts, and civic organizations.

Methodologies:

1. On-site programs for schools in the environmental study area.
2. Off-site programs in local schools.
3. Teacher Workshops in Environmental Education.
    a. To introduce awareness activities for teachers to use in their classrooms.
    b. To acquaint teachers with printed materials available to them.

Plans for the Future:

1. Enlarge the Students Toward Environmental Participation Program (STEP)
2. Widen contacts with local schools and school systems and encourage their participation.

(December 1976)

KENNESAW MOUNTAIN NATIONAL ENVIRONMENTAL STUDY AREA

Alvoid L. Rector, Park Superintendent; Emmet A. Nichols, Chief of Interpretation; David A. Brown, Park Technician; Kennesaw Mountain National Battlefield Park, P.O. Box 1167, Marietta, Georgia 30061; (404)427-4686.

The purpose of the Kennesaw Mountain NESA is to provide a suitable study area for use of area schools which include both the local Marietta/Cobb County systems and those of the Atlanta metropolitan area. Groups using the area have included elementary, middle and high schools as well as colleges and universities.

Use of the area has declined during the past several years for a number of reasons. The environmental education program of many schools [illegible] leveled off after the initial thrust of several years ago, alternate areas closer to the individual schools are available, and a decrease in the park environmental education staff does not allow the one-time active solicitation of school groups to use the NESA.

A trial program of scheduled environmental walks for park visitors was initiated during the past summer; however, the response was so poor that the program was cancelled. Visitors advised that they were here for the historical and recreational aspects of the park, and only a few expressed interest in either an environmental walk or a nature walk.

Our current plans for the Kennesaw Mountain NESA are to maintain the area for use by area schools and other educational groups, to remind all schools and groups that the area is available for their use, to provide teacher guidance and printed guides for use of the area, and to provide such group leadership as can be provided by the present staff.

(December 1976)

CALLAWAY GARDENS

Dr. Robert A. Pedigo, Director of Education, Ida Cason Callaway
Foundation, Callaway Gardens, Pine Mountain, Georgia 31822;
(404)663-2281.

Callaway Gardens was conceived and founded by Mr. and Mrs. Cason J. Callaway, Sr., for the benefit of mankind. The overall purpose has been to maintain a place where all may find beauty, peace, inspiration, knowledge and wholesome recreation.

The Gardens is made of two parts: 2,500 acres of developed property illustrating advanced land management procedures featuring native floral areas, extensive horticultural collections and thirteen man-made lakes; and an adjacent 8,000 acres of undeveloped land with a wide diversity of native vegetation, wildlife and natural streams. Callaway Gardens is owned and operated by the Ida Cason Callaway Foundation, a non-profit educational, scientific, religious and charitable corporation, and Garden Services, Inc., a regular business corporation.

Environmental education programs are offered by the Education Department, which has a professional staff of seven. A wide variety of programs and activities are conducted. Here, visitors can learn the fundamental principles and the intimate details of almost every aspect of the natural world, either in our informally-structured "public" programs, by wandering along our information-laden trails, or just quietly investigating the marvels of living things in our protected setting.

The informal "public" programs are available to guests staying at our 365 room Holiday Inn, those staying at our 175 cottages and day visitors. These activities include such diverse topics and interests as: orienteering, insects, pioneer life, tree walks, vegetable garden walks, night sensitivity, two and one-half hour horseback rides, half-day hikes, bird walks, mushroom walks and many others. Each is led by an experienced staff person. Emphasis has been placed on involving people directly with the total environment through the "hands-on" approach. Ecological concepts are stressed throughout.

Schools (K-16) and youth groups receive more in-depth programs, yet they may choose from a wide selection of disciplines.

---Robert A. Pedigo
November 1976

FORT PULASKI NATIONAL MONUMENT

Superintendent,.Fort Pulaski National Monument, P.O. Box 98, Savannah Beach, Georgia 31328; (912)786-5787.

Overall Purpose:

To identify and preserve an environmental study area where students and other interested persons can participate in environmental education programs and to provide technical assistance to such groups.

Specific Objectives:

1. To create an environmental awareness for groups and individuals and introduce each to his or her cultural and natural environment, past and present, and help him realize that he is a part of it.

2. To encourage use of the park by schools and other interested groups and individuals for the purpose of environmental and historical study.

Target Audiences:

School groups and other interested groups or individuals.

Methodologies:

Provide technical assistance to teachers or other group leaders.

Materials Produced:

Brochures and/or teacher's guide in the process of being developed and published.

The primary source of information is the unique marshlands within the park.

---Grady C. Webb
December 1976

OKEFENOKEE COOPERATIVE EDUCATIONAL SERVICES AGENCY

Donald L. Berryhill, Science Specialist, Okefenokee CESA, Route 5, Box 406, Waycross, Georgia 31501; Dr. A. L. Woodward, Director, Okefenokee CESA.

The Okefenokee Science Project began in 1967 as an ESEA Title III program. The public schools of four systems cooperated in the development and use of the Okefenokee Swamp as an outdoor environmental lab for grades K-12.

Teacher workshops produced several instruments which many of the teachers continue to use and modify for their unique objectives.

The overall purpose of the program is the development of attitudes which enhance the preservation and wise use of our natural resources, with emphasis on threatened and endangered species.

Specific objectives include: (a) To develop the concept of physical parameters and how they influence the biota; (b) To develop an understanding of the interrelationships that exist between the fauna and flora of a habitat; (c) To develop the concept of threatened, endangered, and extinction through the study of local species.

The immediate target audience is the public school population from the surrounding school systems and visiting groups with special arrangements.

Methodologies include field trips into the Okefenokee Swamp and surrounding upland natural areas such as rivers, old fields, outcrops, and managed timber lands. Data such as solar radiation, temperatures, pH, O_2, CO_2, existing weather, topography, fauna and flora, dominant and typical, are collected. Ownership, administration, public use, and impact are assigned projects. Equipment and materials are provided.

Materials produced include activity sheets, 35mm slides, and a few 8mm and 16mm motion pictures.

Funding is presently available through participating school systems, fees from visiting groups, and some state funds.

Future plans include extension and expansion of existing boardwalk system within the Okefenokee Swamp.

---Donald L. Berryhill
October 1976

BIRD PARK ENVIRONMENTAL STUDY AREA

Dale C. Thompson, Chief Park Naturalist; Hawaii Volcanoes National Park, Hawaii 96718.

Purpose:

Bird Park ESA was established to serve as an outdoor classroom. The site is a kipuka or wooded "island" prominence surrounded by younger lava flows. Such kipukas are effectively isolated for long periods of time and sometimes evolve distinctive flora and other characteristics peculiar to the site. Bird park offers an opportunity to study the interplay of geological and biological forces and the intimate and dynamic relationship between rock and plant.

Target Audience:

School teachers and students on the Island of Hawaii and organized groups with a special interest in ecology.

Methodologies:

A teacher's guide has been developed which suggests such techniques as using the STRANDS concept in an interdisciplinary approach to understudy the environment (i.e., through activities, incorporate the language arts, mathematics, music, science, etc.).

---Robert D. Barbee, Superintendent
December 1976

NESA PROGRAM

Carla Freitas and Blossom Sapp, Park Technicians, City of Refuge National Historical Park, Honaunau, Kona, Hawaii 96726; (808)328-2326 or 2288.

The overall purpose of this NESA program is to acquaint people with the outdoors and to make them aware of the richness and crisis of the natural world; also, the role man plays in his environment.

The specific objective is to reach as many people as possible, especially those in the field of education; to provide them with the natural and historical resources and emphasize the conservation practices used by the early Hawaiians.

The method of teaching is based on the five environmental strands. Materials used for conducting workshops are mostly of the existing resources. Free handouts are materials developed by the National Park Service.

The NESA workshops at City of Refuge are funded by the Hawaii Natural History Association.

Plans for the future are to hold at least two teachers' workshops a year.

---Jerry Y. Shimoda
December 1976

MARINE SOCIAL STUDIES

Robert M. Ogata, Program Specialist, Environmental Education, State Department of Education, P.O. Box 2360, Honolulu, Hawaii 96804.

The Department of Education, State of Hawaii, received a P.L. 93-278 grant of $42,718 for Fiscal Year 1975 to develop resource materials for Marine Social Studies to be used in our high schools. Through a contract with the University of Hawaii, plans were made to have two units developed in marine studies, entitled, 1) Shoreline Management and 2) Ocean Resources, Law and Politics. The Shoreline Management unit has been completed and is currently being used on a trial basis by nine sections of students in four high schools with plans to increase this to ten sections in six high schools next semester.

Mr. Ray Conrad of the Curriculum Research and Development Group at the University of Hawaii supervised the efforts of developing the units and coordinated program implementation into the high schools with Mrs. Elaine Takenaka, Program Specialist for Social Studies of our Department.

---Robert M. Ogata
November 1976

WAIKIKI AQUARIUM

Sara Peck, Education Specialist, Waikiki Aquarium; University of Hawaii,
2777 Kalakaua Avenue, Honolulu, Hawaii 96815; (808)923-5335.

The Waikiki Aquarium began an education program in 1974 through grant funds from Sea Grant. From 1974 till now, the program has proved to be successful and has expanded both in numbers of participants and numbers of recipients.

The purpose of the education program is to offer innovative educational programs for the benefit of the entire community from kindergarten children through adults.

Specifically, the objectives of this program are to:

1. Provide marine education experiences for students, grades K-12, who visit the Aquarium through educational tours. Over 18,000 school children were toured in the 1975-76 school year.

2. Organize and administer a docent (volunteer) program to conduct educational tours.

3. Develop curriculum materials for use by teachers before and after such visits.

4. Develop live and static exhibits to complement the educational tours and inform the general public.

5. Provide courses, workshops, and seminars for interested community members.

To accomplish the above objectives, the Aquaruim continues to cooperate with the Department of Education, the University of Hawaii, and other public or private organizations interested in marine education.

Materials produced to date include:

1. Five Aquarium Booklets, which serve as guides for teachers on grade levels K-12.
2. Two "Touch Basket" presentstions which are available for young groups when they tour the Aquarium.
3. Twelve Slide/Tape Lectures on assorted topics and suited for different grade levels of comprehension.
4. One 120-page Docent Handbook.
5. A collection of over 1000 slides on marine biota and other marine related topics.

Several means of evaluation have been employed to assess this program. Evaluation has continued throughout the duration of the program through written evaluations from teachers receiving the tours. As a measure of the program's success, the 1976 State Legislature has seen fit to appropriate monies to fund three education positions at the Aquarium. Unfortunately, the University of Hawaii, proprietor of the Aquarium, has not been able to allocate the funds appropriated.

Future plans for the education program depend to a large degree on what funds will be made available. In the event that funding is secured, the docent touring program will continue, the classes and seminars will continue and expand in scope and audience, new displays, both live and static, will be created to further augment the educational thrust of the program, the neighbor island in-school-visitation program will continue and expand, additional materials and publications will be made available for the visitors and program participants.

---Sara Peck
November 1976

1975 DIRECTORY REFERENCE: pp. 312-313.

ERIC DOCUMENTS:

1. *Directory of the Public Aquaria of the World. Fifth Edition 1974-1975.* ED 100 681
2. *Directory of Aquarium Specialists. 1974-1975.* ED 100 682

IDAHO CONSERVATION LEAGUE

Ed Cheney, Project Director, Agricultural Lands Project; Jeff Fereday, ICL Coordinator; Terry Myers, Project Staff; Idaho Conservation League, Box 844, Boise, Idaho 83701; (208)345-6936.

The Idaho Conservation League, sponsor of the Agricultural Lands Project funded under P.L. 93-278, is a non-partisan voice for conservation legislation and policies in the state. We operate an information center on conservation issues and a lobbying office in Boise. We are currently working on two environmental education projects -- the previously mentioned Agricultural Lands Project and an Energy Conservation Project funded by the Federal Energy Administration through the Idaho Energy Office.

The Agricultural Lands Project's general objectives are (a) to create a common ground for communication and possible co-operative action between farmer/ranchers and conservationists and (b) to find and summarize relevant data on agricultural practices and their various impacts. This last would include the entry into production of Federal land, loss of "prime" agricultural land to urban sprawl, energy consumption of Idaho farms, trends in ownership, and so on.

From the above it can be seen that the primary target audience for both research and dissemination of results is the farmer. We also intend to present the information gained to the general public. The means of dissemination in both cases will be through a statewide conference, tentatively scheduled for late February, 1977, and through general media release. Both the research results and conference conclusions/recommendations will be published in some form and released. However, the actual nature of that publication has yet to be decided.

Funding is primarily through the H.E.W. "mini-grant" although sources of additional funding are being pursued. The total budget for the project, including the most promising additional source and "in-kind" donations would be in the range of $26,000.

Evaluations of the project will be basically "in-house", although some evaluation will be undertaken for the grantors and be included in the publication. Additionally, the participants at the conference will evaluate our efforts as a part of the conference format, giving us some immediate feedback.

In the future, we may take knowledge gained from this project and apply for certain funds in order to produce an audio-visual presentation. At this point, however, we are not completely sure of our plans in this direction.

---Terry Myers
September 1976

REGIONAL STUDIES CENTER

Donna Parson, Regional Studies Center, College of Idaho, Caldwell,
Idaho 83605.

While we continue to have peripheral interest in environmental education, most of our activities are in other areas.

---Donna Parsons
October 1976

1975 DIRECTORY REFERENCE: pp. 313-314

ERIC DOCUMENT:

A Guide to Environmental Study Areas of the Snake River Region. Final Report. ED 075 263.

ENVIRONMENTAL SCIENCE LEARNING PROJECT

Dr. Musa Qutub, Associate Professor, Department of Geography and Environmental Studies, Northeastern Illinois University, Bryn Mawr at St. Louis Avenue, Chicago, Illinois 60625; (312)583-4050 Ext. 789 or 735.

Major Objectives: To enable teachers to develop their own local environmental activities' guide and learner's guide, based on the motivated, self-directed learning model.

Specific Objectives: To conduct workshops to allow teachers to experience the motivated, self-directed learning model, so they can translate their experience to their classes.

Target Audience: Teachers, supervisors and principals.

Methodologies: To have teachers actively participate in environmental problem solving, with emphasis on their immediate environment.

Materials Produced: Motivated, self-directed learning model is available upon request and handouts, reference materials, necessary to the workshop.

Funding: Major funding, so far, has come from industry.

Progress Evaluation: A follow-up evaluation is conducted every three months to detect what materials the teachers are preparing as the result of the workshop. We are closely working with the Chicago Board of Education and the Archdiocese School Board.

Future Plans: Conduct extensive workshops in Illinois, Wisconsin, Kuwait and Saudi Arabia.

---Musa Qutub
September 1976

1973 DIRECTORY REFERENCE: pp. 155-156

1975 DIRECTORY REFERENCE: pp. 30-31

ERIC DOCUMENTS:

1. Environmental Reference Series. Earth and Environmental Studies. Part I. ED 072 969
2. Environmental Reference Series. Earth and Environmental Studies. Part II. ED 072 970
3. Environmental Reference Series. National Ecology Center. ED 072 971
4. Environmental Reference Series. Conservation and Wildlife. ED 072 972

PROJECT CREATION

Jean G. Hauser, Director, Project CREATION, Title III, ESEA, Illinois Office of Education, LaSalle-Peru Township High School, 541 Chartres Street, LaSalle, Illinois 61301.

Project CREATION was developed under a 1974 grant from the Illinois Office of Education, with funds provided by the Elementary and Secondary Education Act, Title III.

The original concept for CREATION was developed at LaSalle-Peru Township High School, where the chairmen of the science and social science departments determined there was a need for an inter-disciplinary environmental course. More and more there is agreement among environmentalists that our problems are not simply confined to the measureable world of the scientist, but that many environmental problems have to do with social science, the way we think, our governmental bodies and economic factors.

The overall purpose of CREATION is to develop students as citizens who will hold a strong environmental ethic. By this, we mean citizens who will support the values and actions needed to retard man's negative impact on our planet.

Specific objectives for CREATION are stated at two levels, universal environmental objectives and objectives for each of the four categories of our curriculum. The universal objectives are contained in the themes of interdependence, impact, maintenance, quality of life, and improvement. These are concerns that are universal to all people all over the earth.

When a student has completed CREATION he or she will understand these universal objectives, plus the objectives stated for each of the categories of energy, land use, urban management, and pollution.

The target audience of CREATION is high school students (9-12) of all ability levels. In the development of the project we have used a wide variety of methodologies. They include curriculum contracting, small group inquiry, a problem-solving model, team-teaching, solution sharing, large group presentations by community members, and involvement of students in the community to study local environmental problems.

Students form into small groups, and choose one of thirteen units divided among the four categories. After taking the pre-test students move through background materials in the unit, which are written to specific learner-outcome objectives. The study of local environmental problems allows students to use their knowledge to investigate a real problem within their own community. The post-test evaluates student growth.

Students report on their study of a local environmental problem with various student-produced media, although this could be an optional segment of the program. In the developmental project students may use videotape, audiotape, super 8mm film, slides, still photos, write-on filmstrips, or transparencies. Students also use a column in the weekly student newspaper to share their investigations of local problems and possible solutions with fellow students and the community at large.

Students taking CREATION at LaSalle-Peru High School are designated as the experimental group. The control groups are made up of other science and social science students at LPHS, and students from Erie and East Moline High Schools. A pre and post-test design is being implemented. The nationally validated instruments being used for validation are the Morehead Environmental Awareness Test, the Test of Reasoning in Conservation, and NM Concepts of Ecology, Level 2. Student's are also given a locally written instrument, Levels of Environmental Understanding and Concern, Parts I, II, and III.

According to the guidelines of the Illinois Office of Education and Title III, Project CREATION will be evaluated in the spring of 1977 for state validation. This validation is based on test data, potential exportability of the project to other schools, and cost-effectiveness. Copies of the final research evaluation will be available in late spring, 1977.

If CREATION becomes a validated project of the Illinois Office of Education, plans will be implemented to disseminate the course curriculum and methodologies to schools throughout the state. The possibilities of national validation through the U.S. Office of Education will be explored, presenting the potential for dissemination of this innovative project throughout the nation.

---Jean Hauser
October 1976

1975 DIRECTORY REFERENCE: p. 183-185

POLLUTION CONTROL CENTER, Oak Park and River Forest High School

Edward C. Radatz, Director. Oak Park and River Forest High School,
201 N. Scoville Avenue, Oak Park, Illinois 60302; (312)383-0700 Ext. 561.

The Pollution Control Center at Oak Park and River Forest High School is a student-run organization dedicated to the preservation of the natural environment. The Center attempts to accomplish that goal through public awareness programs, community environmental services, political activity, and field trips.

The Center was orginally formed in 1970 when students organized a massive conservation workshop to commemorate the first Earth Day in April of that year. Following the success of the workshop, students received permission to establish an office equipped with files and a telephone. The Pollution Control Center is open each school day from 8:20 a.m. to 3:20 p.m., with one or two student volunteers on hand to answer the phone. Students and the public may obtain free information in the form of pamphlets, periodicals and books on almost every environmental topic. By providing a phone service, citizens and students in the community can call to request information on environmental subjects, speakers for their school or club, or any of the other services provided by the Center.

High school students share their knowledge by giving presentations to local elementary schools. Usually these programs center on basic ecological concepts and guidelines for children to follow both at home and at school; the Center also provides curriculum assistance to teachers. The Center provides speakers for local clubs and organizations; many of the groups the students talk to have contributed to the Pollution Control Center or have helped to finance a student to attend a summer environmental workshop.

The Pollution Control Center also provides scholarships for students to attend summer programs, in addition to those provided by local clubs. The availability of these scholarships has drastically increased the number of students who have been able to attend the workshops, and the result has been increased environmental awareness at the high school. The Center has used several methods to raise funds for the scholarship program, including patch and T-shirt sales, and cooperation with the gymnastic team in its annual fund-raising "Routine-a-thon."

The Pollution Control Center has sponsored many field trips, including several Chicago waterways cruises, and a recent trip to the Indiana Dunes National Lakeshore. Attempts have been made to include in these field trips as broad a student spectrum of participation as possible.

Since its inception, the Center has promoted environmental awareness through newspapers, a newsletter, displays, posters, photography, and radio and television coverage. The Center also works closely with the school newspaper, the Trapeze, which has won several awards for environmental journalism.

Recognizing the importance of environmental legislation on all levels, students involved in the Center have concentrated on expressing their views to government officials and other influential people, and attempt to deal directly with elected officials whenever possible. In addition, numerous state and federal officials have visited the high school and its Pollution Control Center. After listening to talks by these officials, students were able to question them concerning environmental legislation. Students have also been excused from class to attend important hearings and workshops such as those on the Lake Michigan Bill of Rights and the Federal Energy Administration.

Students also began to be interested in the DesPlaines River, a large polluted river near the high school. They organized several clean-ups along the river, and soon formed informal teams which went out on weekends to patrol for water pollution violations along the river. The students discovered and reported many violations, and were commended for their actions by the Metropolitan Sanitary District of Greater Chicago.

The students of the Pollution Control Center helped start a permanent recycling program for newspapers, glass, metal, magazines and cardboard. The original operation was started in 1971 and has since been taken over by the Village of Oak Park. The recycling program yeilds a net profit of over $1800 a year to the village, and as a tribute to student involvement, only students are employed by the village to operate the bins. The Center operates a paper pick-up service for senior citizens and others unable to take their papers to the recycling center.

The Pollution Control Center has been recognized many times for its accomplishments. In 1972, the Center was selected as one of four recipients nation-wide of the first Presidential Environmental Merit Awards, and in 1973 the Center was selected as a representative from the state of Illinois in a national competition sponsored by the Eco-America Awards Program of Keep America Beautiful, Inc. In 1975, the Center received a Distinguished Service Citation in the national Keep America Beautiful, Inc. Awards Program.

---Edward C. Radatz
October 1976

1975 DIRECTORY REFERENCE: pp. 185-186

ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS OF NATURAL GAS SHORTAGES

Catherine Huther, Project Director; Judith Groves, Executive Director, Illinois Environmental Council, 407½ East Adams, Springfield, Illinois 62701; (217)544-5954.

The Illinois Environmental Council, under a mini-grant from the Environmental Education Office, will be presenting a series of workshops in five locations in the state of Illinois in early 1977. The subject will be "Economic, Environmental and Social Impacts of Natural Gas Shortages." The purpose of these workshops will be to address the problem of potential shortages in natural gas supplies in Illinois - what alternative solutions are available to citizens, industry and agriculture and what are the consequences of those alternatives.

We hope these questions will be addressed not only by utility and government representatives but also by industry, agriculture, small businessmen, environmentalists, consumers, senior citizens, low income groups and the public at large. In an effort to bring together all these groups and elicit opinions and information from them, the mechanism of the nominal group process will be used for part of the day. Through this method we hope to actively involve a wide spectrum of each community.

Production of resource materials is underway at present. We expect to have a slide show with script developed as a background presentation for each workshop.

---Catherine Huther
October 1976

UPPER MISSISSIPPI RIVER ECO-CENTER COOPERATIVE

Dennis Etnyre, Director, Upper Mississippi River ECO-Center; Bruce Floyd, Disseminator, ECO-Center Diffusion Project; Thomson, Illinois 61285; (815)259-3282.

The Upper Mississippi River ECO-Center Cooperative is an exemplary environmental education project serving eleven school districts of Northwestern Illinois. It is administered by Carroll County Educational Service Region. Project operation began in July 1972. Its major goal is the implementation and coordination of a comprehensive environmental education program for the students and citizens of Carroll County.

The ECO-Center currently has a staff of two certified personnel involved in the following areas:

1. A multi-disciplinary approach emphasizing the interrelationship of man and nature.

2. A focus on the local environment of Northwestern Illinois.

3. Utilization of resources outside the classroom.

A variety of activities were designed to integrate environmental education into existing instructional programs:

1. A series of in-service training sessions for classroom teachers.

2. Identification and development of area resources for student field trip experiences.

3. One-day field experiences at local outdoor sites.

4. Development of a local outdoor education site.

5. Dissemination of information to professional educators as well as to the community.

6. Development of a library of reference materials for teacher and student use.

7. Development of local curriculum materials for environmental education.

8. Development of an outdoor course for high school students.

9. Coordination of educational activities by area agencies through an advisory council.

10. Development of an intermediate level environmental awareness test.

The ECO-Center is planning educational experiences which will improve knowledge and attitude necessary for maintenance and improvement of our environment.

The "pilot target" group during the first year of operation was the fifth grade students and teachers of Carroll County. Measurement showed that students had significantly increased their environmental awareness. During succeeding years the program has expanded to include grades K-8 and eleven schools in Northwestern Illinois. Measurements continue to show a significant increase in student and teacher awareness of the environment.

The project is presently following a two phase program of (1) continuing the original on-going program in the eleven schools and (2) a diffusion program disseminating and helping school districts in Illinois to set up environmental education programs. The second phase of the program is funded by Title IV, ESEA. Local funding by the area schools carries on the original program.

The following is a list of curriculum materials that were developed by teachers and staff members while working with the ECO-Center Title III project. Single copies may be obtained by writing to the ECO-Center.

1. Environmental Education - An Interdisciplinary Approach for the Intermediate Level. A 140-page Teacher's Guide to Fifth Grade Environmental Education. The Guide contains field experiences, school site activities, and classroom lessons with behavioral objectives and evaluation method identified. The Guide has many ideas for setting up a field program and coordinating it with the on-going class work, appropriate for the intermediate level. Available at a cost of $3.00.
2. Environmental Education Curriculum Guide for K-8. An 84-page Guide produced by a commitee of elementary teachers. It is the purpose of the Guide to coordinate environmental education in the elementary grades (K-8). The concepts are sequentially developed in six major areas: air, land, water, animal life, plants, and recreation; with suggested activities listed for teaching these concepts. Available for $2.00.
3. In-Service Training Manual. A manual designed to allow local school districts to conduct an in-service training program for teachers without the aid of an outside resource. The manual is built around the ECO-Center's programs and views of environmental and outdoor education. Available for $3.00.

(October 1976)

1973 DIRECTORY REFERENCE: pp. 171-172

1975 DIRECTORY REFERENCE: pp. 31-32

ERIC DOCUMENTS:

1. Upper Mississippi River ECO-Center Environmental Education Project. First Year Report, Project Year 72-73. ED 093 529
2. Teacher's Guide to Fifth Grade Environmental Education. ED 096 085

ENVIRONMENTAL EDUCATION - CANOEING A WILDERNESS

Jay Hammel and Douglas Waldman, Coordinators and Co-instructors;
Homestead High School, 4310 Homestead Road, Fort Wayne, Indiana;
(219)432-6122.

"Environmental Education - Canoeing a Wilderness" was created as an elective course for students in grades 10-12 to fill a demand in the school curriculum. The course was accredited by the State of Indiana for academic credit before it was offered to the students in 1974. There were no course pre-requisites and two credits were awarded in the area of Environmental Education. In 1974, thirty-nine students elected to take the course and the class was cut to thirty-two. The course consisted of approximately 280 hours of instructional time during the year and the summer trip.

The textbook Patterns for Preservation by Tillotson was used as a background for the course. Maps, brochures, manuals, and field guides received extensive use both before and during the trip.

The course consisted of two main parts: one the classroom instruction and training and secondly, the two-week wilderness experience.

The two-week experience consisted of more that just a trip for the students. The traveling to Quetico Provincial Park at Atikokan Ontario was more than a charter bus ride. To make the bus ride more enjoyable and educational various stops were made to acquaint the students with other areas of the curriculum or environmental education. In 1974, stops included the following: The University of Wisconsin's Arboretum at Madison, Necedak National Wildlife Refuge, a tour of the iron ore and grain docks area in Duluth, Minnesota, tour of the granary docks area in Thunder Bay, Ontario, Sleeping Bear Dunes and dune ecology, a canoe trip in Quetico Provincial Park, Ontario. The 1975 course included a tour of the Mitchell Park Horticultural Conservatory in Milwaukee, the Horicon National Wildlife Refuge, the University of Minnesota's Lake Superior Basin Study Center in Duluth, The Great Lakes Paper Company mill tour in Thunder Bay, Ontario, Reconstructed Fort William in Thunderbay, a seaplane trip to Isle Royale National Park, a visit to the Ford Forestry Center in Alberta, Michigan, a visit with Dr. Robinson, Biology Professor and Wolf Researcher at Northern Michigan University in Marquette, a visit to the Michigan State Park of Hartwick Pines, and a visit to Alma College's Outdoor Lab and Natural Bog at Alma, Michigan.

The 1976 Quetico Trip included a tour of Wisconsin's Necedah National Wildlife Refuge, a visit to the Environmental Protection Agency's (EPA) Environmental Research Laboratory in Duluth, a visit to the University of Minnesota's Lake Superior Basin Study Center also in Duluth, a nine-day canoe trip to Quetico Provincial Park, Ontario, a visit to the Grand Portage National Monument in Grand Portage, Minnesota, a stop at the Pictured Rocks National Lakeshore on Lake Superior at Munising, Michigan, and a visit to Tahquamenon Falls in Michigan.

The 1976 Colorado Trip included stops at Abraham Lincoln's Grave and Homesite in Springfield, Illinois, a tour of the Cannon National Wildlife Refuge along the Mississippi River in Missouri, a variety show visit at "Old Front Street" in Dodge City, Kansas, a tour of the Comanche National Grasslands at LaJunta, Colorado, a stop at the Royale Gorge of the Arkansas River at Canon City, Colorado, a tour of the Roaring Judy Troup Hatchery near Crested Butte, Colorado, a four-day backpacking trip in the West Elk Wilderness Area in the Gunnison National Forest, three days in Rocky Mountain National Park including a climb up Long's Peak, a visit with Dr. Fults, a columbine researcher, at Colorado State University in Fort Collins, Colorado, a visit to the Greeley

Stampede, a rodeo in Greeley, Colorado, an all-day tour of the Pawnee National Grasslands in Northeastern Colorado, a tour of Monfort of Colorado, Inc., and a tour of the USDA's Meat Animal Research Center in Clay Center, Nebraska.

Travel for the various courses had been by charter bus until 1976. Due to the smaller class size of nineteen students, charter bus was too expensive. The classes now travel by two twelve passenger vans driven by the instructors. Traveling by vans enabled us to make unscheduled stops to point out items of interest otherwise missed or impossible to stop at.

Following the completion of the course, students and parents have a pot-luck dinner and evening together where slides of the course are shown and evaluation is completed. The evaluation consists both of a discussion as well as a written form completed by both the students and the parents.

The enthusiasm and demand for the course is continuing to grow. The course will be offered in 1977 and again will offer canoeing and backpacking. Other subjects for the course have been considered such as oceanography or limnology.

(October 1976)

CONSERVATION PUBLIC SPEAKING CONTEST

James Barnett, Director, Natural Resources, Indiana Farm Bureau, Inc.,
130 East Washington Street, Indianapolis, Indiana 46204; (317)631-8361.

This program of the Indiana Farm Bureau, Inc. is in the form of a conservation public speaking contest. The overall purpose is to encourage students and high school teachers to become better informed about conservation and natural resources.

Specific Objectives: To encourage high school students and teachers to study and become aware of problems associated with agriculture and natural resource and environmental issues, and to look at ways of solving some of these more specific problems.

Target Audience: High school students; Methodologies: a public speaking contest which includes competition-county, regional and state levels.

Materials Produced: We have made tape recordings of the seven state contestants, available to Soil and Water Conservation Districts in the state for their use in publicity and education, not only about the public speaking contest, but about the subjects in general.

Funding Sources: Funding is made available by the three sponsoring organizations. Indiana Farm Bureau, Inc. provides a $500 scholarship to the state winner and savings bonds in the amounts of $100 and $50 to the second and third place winners. Trophies are also awarded to these winners along with a dinner at the state contest. The Indiana Association of Soil and Water Conservation Districts organizes and provides awards and publicity for the contest at the county level. The Hoosier Chapter of the Soil Conservation Society of America provides awards in the seven area contests.

Program Evaluation: This program has been conducted by the three sponsoring organizations for eleven years. Participation at the county level has involved some 250 to 300 students each year in county elimination contests. Many other students participate, in the schools in working on materials for the contest, even though they may not participate in the county elimination contest. The topics for the speeches are changed each year. Topics in past years have included such things as: Forestry, Use of Soil Surveys, Conservation Farm Plans, as well as more general topics. In 1977 the topic will be "Natural Resources--Planning to Meet Our Country's Needs".

Plans for the Future: We will continue to evaluate this program each year, with the sponsoring organizations, to determine the worthiness of this project as it meets our goals. In planning for the 1977 program, recognition and endorsement for the public speaking program was received from the State Superintendent of Public Instruction in Indiana.

---James Barnett
September 1976

PRIDE

Thomas F. Kibler, Director; Indiana Energy Office, Room 803, State Office Building, Indiana Department of Commerce, Indianapolis, Indiana 46204.

PRIDE (not an acronym) provides state-wide coordination of conservation programs, promotes and expands individual and corporate conservation efforts, and recognizes the achievement of desirable conservation goals.

PRIDE also provides the guidance for implementing conservation programs in various areas of endeavors and is prepared to assist conservation groups in their activities.

PRIDE was adopted in 1973 following the oil embargo and at that time stood for "Partners in Reducing Indiana's Deficiency of Energy". It was the official program of the State of Indiana to bring the energy conservation message to its people and marshal public support of the need for energy conservation.

Following its adoption, a State Pride Committee was named by Governor Bowen with Lieutenant Governor Orr as Chairman. The makeup of the committee included all segments of the private sector such as labor, industry, the Indiana State Chamber of Commerce, Farm Bureau, and the Commercial Executive Association which represented local chambers of commerce throughout the state. A public relations sub-committee was also formed. Donated time, materials and services were obtained wherever possible.

State-wide response was good and entire communities were committing themselves to energy conservation and taking actions to ensure it. Once the embargo was lifted though, and the public could buy all the gasoline they wanted, interest waned. The need for conservation was still there but the public seemed to relate to "crisis" situations and expressed a general disbelief of an "energy shortage".

In January '75 PRIDE was reorganized by Governor Bowen to be all inclusive of conservation in its broadest sense. Conservation of energy and natural resources was no longer an acronym but now stood for the dictionary definition of the way one feels when you accomplish something and no one's made you do it.

The expanded role of PRIDE was to create "Conservation Partners" throughout the state, organize new programs where none existed and assist the efforts of the programs presently in place.

The Indiana Energy Office of the Indiana Department of Commerce was given the task of implementing PRIDE. A coordinator was hired, and with the staff of the Energy Office and Public Information Department of the Department of Commerce, a refined PRIDE program was developed with accompanying pamphlets and a slide presentation.

Examples of PRIDE progams are as follows:

1. FEA...Commercial and Industrial: This program can be utilized to conserve energy in commercial, public and industrial buildings. A number of specific actions are included. (Federal Energy Administration - Indiana Energy Office).

2. Adopt a Park: Civic and private groups assist with the responsibility for maintenance, upkeep and improvement of a local park. (Department of Natural Resources).

3. Community Park Clean Up and Nature Trail Development: This program is designed to improve park facilities through clean-up, identification of trees, flowers, grass, and to develop a nature trail, using existing facilities within the park. (Department of Natural Resources).

4. Keep America Beautiful - Keep Indiana Beautiful: A program that encourages the clean-up and beautification of the Hoosier State. (Governor's Office of Voluntary Action - Environmental Quality Control, Inc.).

5. Pitch-In: Provides broad information for encouragement of an anti-litter ethic. (National Brewers Association).

6. Plant a Tree: A program developed to increase public awareness of the economic and aesthetic values of our forests. (Arbor Day Celebration).

7. Vacant Property Clean-up: This program is designed to improve the physical appearance of an unused or vacant portion of land through clean-up and green-up to create a mini-park where city property is involved. (H.U.D. - Department of Natural Resources).

8. Energy Management for Indiana Agriculture: This program will concentrate on areas of agricultural production that offer sizeable potential for reduction in energy and production costs, without associated losses in productivity or product quality. (Cooperative Extension Service - Purdue University).

PRIDE is so flexible that each community can take whatever concept they like and adapt it to their own community needs. We are then ready to assist the community with speakers, films, informational pamphlets and seek out expertise as needed.

If a community has an established and developed program of their own, we can still assist them and the community can use our awards if they so desire.

Since the fall of '75, about ninety PRIDE presentations and speeches have been made. Supplies of information materials have been sent, and quantities of the FEA education pamphlets "Energy Activities with the Energy Ant" and "Energy Activities for Young People" have been requested for the schools and communities contacted. The PRIDE coordinator has conducted workshops on conservation during conferences sponsored by the Governor's Office of Voluntary Action. PRIDE has co-sponsored, with several community chambers of commerce, workshops on Energy and/or Environmental Conservation. PRIDE coordinated federal, state, local and private sector experts for these workshops which were provided at no cost to the community. PRIDE has co-sponsored with five chambers of commerce major "clean-ups".

The award factors are an integral part of the PRIDE program.

The Robert C. Morris Memorial Citation will be given only to those individuals or organizations who have expended outstanding efforts and achieved measurable results. These citations will be presented by the Governor only after deliberation by the selection committee. Four of the awards have been presented.

The PRIDE Community Award is designed to recognize individuals and organizations who have put forth real efforts to achieve the establishment of a conservation ethic on a local level. The PRIDE Community Award will be presented to 180 individuals and organizations.

The PRIDE Recognition Award is basically the same as the PRIDE Community Award except it is presented by the Indiana Energy Office to deserving individuals and organizations. The office has presented three of these awards.

Though results aren't always measurable, it appears that the communities are using the PRIDE program in varying degrees and successfully adapting it to suit their individual needs and priorities. These "grass root" community efforts are the necessary groundwork that should make people aware of the need for conservation and the practical and realistic methods available to implement it. One of the most exciting aspects of the PRIDE program is working with the schools and "their children". The dedicated educators are truly concerned about the environment, energy, and economics as it will affect the children they are educating, and their "childrens' children".

---Thomas F. Kibler
September 1976

ENVIRONMENTAL EDUCATION

Sister Marie Bernard Witte, Marian College, 3200 Cold Spring Road,
Indianapolis, Indiana 46222.

Dr. Dennis E. Clark is no longer with us. I have been trying to continue our program but it must be on a limited condition since I am teaching full time. We have been able to make only very slow progress in developing our area due to lack of funds. Practically all work is done on a voluntary basis and sometimes this is very slow. We have had a number of groups of students make use of the area as an outdoor learning experience.

Through funds provided by HEW we were able to develop several activity booklets: Teacher and Student Guide to Environmental Education Activities for K-6 and for 7-12, and Environmental Education Activities for the Trainable Mentally Retarded. We have just about exhausted our supply of materials for K-6 and 7-12.

We do not have a formal program in environmental education and do not foresee such a program at the present time. I think that we shall probably be fortunate if we can maintain our area since this seems to take all of the available time.

---Sister Marie Bernard Witte
October 1976

1973 DIRECTORY REFERENCE: pp. 183-184

ENVIRONMENTAL AND OUTDOOR EDUCATION SECTION, DEPARTMENT OF PARKS AND RECREATION

Harry H. Feldman, Superintendent of Environmental and Outdoor Education, Nature Center, Eagle Creek Park, 6515 DeLong Road, Indianapolis, Indiana 46254; (317)291-5618.

Purpose: The Environmental and Outdoor Education Section (Department of Parks and Recreation) through its programs and services endeavors to foster a more intelligent use and stewardship of the land.

The overall goal is to help individuals (of all ages) to understand, and in turn appreciate, one's surroundings. The Section with its Nature Interpretative Center and Outreach programs seeks to being about positive changes in the attitudes and behavior patterns of people...so they will not destroy or damage the very open space and natural resources they hope to preserve and enjoy.

> The success of the nature oriented and interpretive programs is reflected in increased public participation, respect for property, absence of litter, and enjoyment of natural settings.

This Section seeks to bring about human enlightenment through esthetic experiences; conduct proper land management in line with accepted conservation practices, possess a research component for continuous improvement, and serve as a community institution involving all segments of the population in the planning process for meeting community needs.

> People living apart from the natural "world" will not safeguard, protect, nor treat kindly that which they are not familiar. The mission and important role of this Section is to bring land and people together; and through purposeful programming, offer individuals (of all ages) the opportunity to have direct first-hand experiences in outdoor recreational-educational pursuits.

Other desired outcomes include:

a. Awareness of and sensitivity toward the elements of nature.
b. Reverence toward all living creatures.
c. Protection of plants and animals.
d. Preservation of natural features and scenic areas.
e. Understanding of the environment and life-support systems.
f. Fuller enjoyment of the outdoors through improved skills and knowledges.
g. Acceptance of a Land-Man Ethic for guiding and making sound ecological decisions.
h. Enthusiastic support of park and recreation entities.

In order to stimulate people from merely being interested in a quality environment to concerted action, there needs to be effective education at all levels and with all groups. This Section provides this impetus through its many and varied programs and services, county-wide in scope.

This Section is the first structure of its type in the state to serve as a model for other communities.

With its Nature Interpretative Center (Facility and 38-Acre Arboretum) located within the 3,000 acres of Eagle Creek Park and Nature Preserve, and Outreach Program (extending programs to neighborhoods, areas, districts, and community groups outside the Park Setting), an average range of 10,000 to 20,000 individuals are reached every month.

The Center and its many programs operate seven days per week year-round.

Leadership - Unique Arrangement with Community Volunteers: In order to serve schools, youth serving agencies, church groups, civic and community organizations, institutional and hospital settings, individuals, families, and the general public -

A corps of community volunteers from 30 to 50 in number functions Nature Interpretators, program aides, and many other assignments.

The Junior League of Indianapolis (Women's Service Organization) in a cooperative arrangement with this Section provides a great number of the volunteers on a yearly basis. They also provide financial support for summer staff and exhibit and resource supplies.

The professional staff consist of the superintendent, one full-time librarian-secretary, one year-round part-time staff, and one maintenance employee.

Funding Source and Funding History:

As a Section within the framework of the Department of Parks and Recreation, (a public agency of Uni-Gov, City-County Government), basic budgetary allocations are provided for the operation - funds from tax dollars.

The Junior League of Indianapolis, as part of a cooperative arrangement, provides the salaries for summer employment of nature interpretators. Additional contributions for exhibits and display items are also provided by the Junior League.

Various community organizations and associations make contributions on occasion for special projects, workshops, and conferences.

Target Audiences:

Under the guidance and direction of the Superintendent of Environmental and Outdoor Education, the operation reaches a range of audience from pre-schoolers to the elderly (Senior Citizens), the handicapped, all socio-economic levels, and all segments of the community.

Programs and services are provided for and in cooperation with Public, Private, and Parochial Schools, Universities and Colleges, Institutional and Hospital Settings, Industries, Civic, Service, Religious, and Community Groups, Youth Serving Agencies, Voluntary Agencies, Individuals, Families and General Public.

Pre and In-Service Training programs are provided for teachers and educators; leadership training workshops are provided for agency staff and community volunteers; internships and extended practicums are provided for undergraduate and graduate students.

Community-wide programs held periodically draw in the general public and special interest groups. Radio, television appearances, and lecture series reach further segments of the population.

Detailed History:

In 1965, the Indianapolis Park and Recreation Board purchased (for the City) the Purdue University's land holdings that were previously owned by J. K. Lilly (of Lilly Pharmaceuticals). This large tract of forest-scenic land known as Eagle Creek Park and Nature Preserve contains approximately 3,000 acres of natural topography, vegetation, and wildlife.

Located in the northwest section of the metropolitan city, the setting (now in various phases of development) is being designed to serve the recreational and educational needs of Marion County and central Indiana residents.

To implement the master plan and institute programs and services relating to environmental education, an Environmental and Outdoor Education Section was established in 1970 as part of the administrative structure within the Department of Parks and Recreation.

The existing building facilities and 38 acre arboretum (formerly the J. K. Lilly Estate) located in Eagle Creek Park and Nature Preserve, serves as the base for the operation of this Section.

As was mentioned, the park lands consist of 3,000 acres. Additional features include a reservoir containing 1,250 acres of water surface, a five acre lake, a one acre pond, and numerous creeks and streams.

The two-story building (formerly the Lilly library) serves as the Nature Interpretation Center.

With the support of the Junior League of Indianapolis, The Central District Garden Clubs of Indiana, The Indianapolis Garden Club, The Audubon Society, The Nature Study Club of Indiana, and many other community organizations, support and financial assistance has helped the operation grow and expand.

An Advisory Committee was formed in 1971 with membership representing a diverse, broad cross-section of the community. This Committee serves as the sounding board and evaluative vehicle for the on-going operation.

Evaluation:

1. Evaluation forms were forwarded to all schools within the County that participated in or received assistance from the Section. All evaluations were favorable.

2. Similar evaluation forms returned from youth serving agencies, public agencies, civic and service organizations, colleges and universities were all favorable.

3. Letters on file from institutional and hospital settings are all favorable.

4. Other allied fields of endeavor and agencies have expressed favorable comments relating to the programs, services, leadership, and facilities.

Associated Research, Recognition, etc.:

1. Recognition from Indiana State Department of Public Instruction, Division of Curriculum, 1974 - "Outstanding Support of Environmental Education."

2. Marion County Soil and Water Conservation District Recognition Award 1972 - "Outstanding Leadership in Environmental Education."

---Harry H. Feldman
October 1976

1975 DIRECTORY REFERENCE: pp. 320-321

LINCOLN LIVING HISTORICAL FARM

John C. Riddle, Superintendent, Lincoln Boyhood National Memorial,
Lincoln City, Indiana 47552; (812)937-4757.

The Environmental Study Area at Lincoln Boyhood National Monument presents a unique opportunity for learning experiences. The area combines a natural and cultural study area where teachers can bring their students to study biology, ecology, history, and the other natural and social sciences.

The Park's study area, called the "Lincoln Living Historical Farm", consists of an area including the grave site and cemetery of Nancy Lincoln, a large wooded area, and the park's reconstructed 1824-1825 pioneer farm with its living history program.

The program at Lincoln Boyhood National Monument is used to show the significance of the boyhood of Abraham Lincoln in producing a man who changed the course of history. Children who visit the park are exposed to the environment in which young Lincoln lived, worked, and played, and how his surroundings shaped the boy. The child's learning experience directly relates to his present environment and how he fits into it.

Children who visit the Lincoln Living Historical Farm see, learn, and do many of the following activities: Carding wool, spinning wool, splitting rails, riving shingles, quilting, dyeing wool, and churning butter. Here the child learns how natural things were used in Lincoln's early environment, and compare these methods with modern mechanical life. In other words, the children learn how social changes have changed life styles.

Transportation: No public transportation to park. Nearest airport, Evansville, Indiana, 40 miles; nearest bus station, Huntingburg, Indiana, 15 miles.

Access: Interstate Highway 64 is 5 miles north of the park, US 231 is 2 miles west.

Area Size: Approximately 100 acres.

Number of groups using area in 1976: 174.

Overnight Accommodations: Campground and groups camp with cabins and dining hall available by prior arrangement at adjacent Lincoln State Park. Contact Park Manager, Lincoln State Park, Lincoln City, Indiana 47552; (812)937-4710. Motels and restaurants in nearby towns of Dale, Santa Claus, and Huntingburg.

Support facilities: Visitor Center with museum, auditorium with 25 minute orientation film.

---Gerald W. Sanders
Program Coordinator
December 1976

ENVIRONMENTAL EDUCATION PROGRAM

Dr. Charles A. Dilg, Assistant Superintendent, Instructional Affairs, Logansport Community School Corporation, 2829 George Street, Logansport, Indiana 46947; (219)722-2911.

The public schools in Logansport, Indiana have been involved in a venture that has included students, teachers, administrators, parents and lay people as participants. The venture has been in Environmental Education and has involved three years of work, planning and implementing. Environmental Education has not been sold or dictated as a program but has gone through an evolutionary growth that deals mainly with the needs of people - students, teachers, parents, community - as our depleting environs become more apparent. The program is based upon the definition cited by the Indiana Department of Public Instruction's publication, Total Environment Education, that:

> "environmental education is a recognition by man of his interdependance with his environment and all of life and of his responsibility for developing a culture which maintains that relationship through policies and practices necessary to maintain an environment fit for life and fit for living."

The scope of the programs covers grades K-12 which includes the realm of special education. Their inclusion helps to broaden the cooperative planning experiences for staff and students. Though not all the teachers involve themselves in this area of educational experiences there is a steady growth in the number that implant environmental education into the ongoing program.

The elementary and middle schools have steadily made inroads into programs that inculcate environmental education into the regular content areas. There are varying degrees of articulation between the elementary and middle schools. Staffs in these schools are involved in cooperative planning, implementation and evaluation of the program. Presently there are no distinct measuring devices in the area of evaluation but through observations there has been noted change in learner behavior. At one middle school they use their students to work with elementary learners, thereby implementing a type of peer instruction. This approach has definitely helped the various learner levels to better understand their environment.

At the secondary level environmental education is most closely allied with the area of science, especially biology. A fifty-acre environmental site adjacent to the high school has really produced many excellent learning experiences for students. Articulation is present between secondary and elementary through the cooperative planning of teachers at these levels. Students in the second year biology class work with the chidren in the elementary grades as they visit the environmental site thus providing a teacher-student ratio of one to two, or one to three. This does enhance the learning experience for the students at each level.

The Indiana Facilitator Center has made it possible for a team of five teachers to attend an environmental education workshop for one week-Community Opportunity for Stewardship (ESOC). This action has provided continuity, both vertical and horizontal, in the total program. Provisions for this will continue to be implemented as the Logansport Community School Curriculum Planning Council commences to function. The Cass County Soil and Water Conservation District Office has provided the schools with their services plus materials developed by the Soil Conservation Society of America. Other sources of help would include our County 4-H Office; the public utilities supplying electricity, water, gas and sewage services; local industry; businesses; and individuals that have a keen interest in protecting our environs.

The Indiana Department of Public Instruction's Environmental Education Consultants have contributed excellent assistance in the development of the total program. Since monies have not been exceedingly great, their guidance in developing a successful program cannot be overlooked. Schools entering into programs for environmental education need to look for this leadership at the State level.

Future promise is seen through programs being developed by the Young Men Christian Association (YMCA) and the higher education center at Purdue University. These are available to a school's staff. Through development of sites and in-service education by these groups there will be made available a wider array of activities for teachers and administrators. Of particular interest is the area of camping, or out-of-door education. This particular area has caused excitement in several schools as they plan the integration of learning experiences within content areas. Further interest by staff will be satisfied as programs in this approach are developed.

Logansport Community Schools will carry on a continuous program to improve its environmental education plan. Groups and individuals lending services will be asked to continue their role. New avenues will be explored in an effort to improve the existing program.

---Charles A. Dilg
October 1976

DEPARTMENT OF NATURAL RESOURCES, BALL STATE UNIVERSITY

Dr. Clyde W. Hibbs, Chairman, 2000 University Avenue, Muncie, Indiana 47306; (317)285-7161.

Purpose and Goals: The program in Natural Resources has as its ultimate objective the education of people to help meet the increasing demand for personnel educated in the environmental resources area. It is further dedicated to contributing to the general education of students throughout the university. Through research and extension activities it also strives to provide services and otherwise contribute toward establishing and/or maintaining a state of harmony between people and their environment. The goals of the Department of Natural Resources are as follows:

1. To awaken in students a pursuit of knowledge, an awareness of intellectual freedom, the will to exercise it, and the ability to do so effectively.
2. To participate in and actively support the program of general studies by making available relevant natural resources courses that contribute to environmental literacy and consciousness of Ball State students.

3. To administer and teach high quality curricula for undergraduate and graduate natural resource majors/minors that will enable graduates to contribute significantly to understanding and management of natural resources.

4. To develop strategies which will encourage and administratively support research and/or creative endeavors of departmental faculty and students.

5. To conduct appropriate applied and/or basic research that may be utilized by state and federal agencies, environmental organizations, and private citizens to make wise use of Indiana's natural resource wealth and, where possible, upgrade environmental quality.

6. To provide services, through natural resource courses and other campus or extension activities, that assist various Indiana citizens and citizen groups in furthering their understanding and management of natural resources, and help to solve resource and environmental problems.

7. To cooperate with other units within the academic community as an aid in furthering university-wide goals.

8. To make graduating students aware of the importance of continuing their education through participation in professional societies, workshops, conferences, and other learning experiences.

9. To develop strategies for survival in an environmentally endangered world, and to foster the kind of intellectual climate which will enable us to ask searching questions regarding our natural resources and their use.

10. To develop and administer environmental education/science education curricula for undergraduate and graduate students and to develop close working relationships with other institutions of higher education, Indiana Department of Public Instruction, and public school personnel for the mutual benefit of all concerned.

Target Audience: The Natural Resources Program is designed to:

1. Provide appropriate courses as an integral part of the Ball State general education program.

2. Provide appropriate educational experiences to enable graduates with a major in Natural Resources to become professionally employed in Natural Resources and related areas. The following curricular options are currently available and others are planned: General Resources Management; Resource Geography; Fishery Resources; Communications; Water Quality; Natural Resources Interpretation.

3. Provide service courses for students pursuing a variety of curricula.

4. Provide a teaching minor in environmental conservation to complement teaching majors in a number of disciplines.

5. Provide a graduate major in Natural Resources particularly for students with an undergraduate major in a specialized discipline.

6. Provide a cognate (minor) in Natural Resources for doctoral students.

7. Conduct in-service workshops and extension courses for teachers and school administrators.

8. Conduct or assist with seminars, conferences, and workshops for professional employees of resource agencies, personnel employed by local, regional, and state governments, and for conservation/environmental organization personnel.

Methodologies:

Interdisciplinary activities are an important part of the Natural Resources program. On a number of occasions Natural Resources faculty have taught courses in the Biology and Geography-Geology Departments. Likewise members of those departments have taught courses offered by the Department of Natural Resources. Natural Resources faculty also serve on doctoral committees when the candidate elects a cognate in Natural Resources or as a "member at large". During the 1976 spring term a member of the Natural Resources faculty cooperated with a faculty member in the Department of Economics in teaching a new course in Environmental Economics that had been jointly developed by both departments. On one occasion a Natural Resources faculty member was "loaned" to the College of Architecture and Planning on a half-time basis for one quarter to teach a course in landscape engineering. The following term the same faculty member was loaned to the local Region Six Planning Commission on a one-third time basis to prepare an application for a 208 planning grant. On other occasions a faculty member has been employed by the University of Wisconsin during a portion of two summers.

The department also utilizes the services of resource people in the community and state to enhance the educational experiences provided students enrolled in Natural Resources classes. These include representatives of industry, local governmental units, Indiana Department of Natural Resources, Indiana State Board of Health, U. S. Soil Conservation Service, and the Cooperative Extension Service. Selected high school teachers have sometimes been employed to teach NR 101 when offered as an evening and Saturday class. On another occasion a faculty member from a nearby college was employed to teach the air resources course as an evening class. In addition to teaching, departmental faculty are also involved in off-campus extension activities with one person normally assigned one-third time for this type of work. This includes working with school corporation personnel in developing environmental education curricula and outdoor laboratories and conducting workshops for in-service teachers. This person also works with local, regional and state governmental units and resource agencies. Faculty are also involved with a large number of conservation/environmental organizations as consultants, members of advisory councils and as officers. Students are also encouraged to become involved in these experiences. Assistance is also provided to other colleges and universities in establishing and improving environmental education programs.

Providing practical or "hands on" experiences is an important part of the educational program of students enrolled in Natural Resources at Ball State University. Approximately twenty of the courses currently offered include a weekly two-hour laboratory and field experience. Some courses even include two or three day extended field experiences which cannot be provided on the campus. Students are encouraged to get out where the action is by participating in practicum activities or internships ranging from one to twelve weeks under the supervision of a faculty member and/or professionals working in the conservation/environmental field. If planned in advance it is possible for students to earn up to eight hours of credit by enrolling in NR 496/596 - Practicum in Natural Resources. In some cases students may earn an additional four credits by enrolling in NR 497/596 - Special Studies in Natural Resources.

Materials Produced:

Brochures describing the undergraduate and graduate curricula are available from the Department of Natural Resources. Course outlines and exemplary programs for the various curricula can also be provided.

Concerning publications, members of the Natural Resources faculty have prepared the following:

Hibbs, Clyde W. (Supervised review of publications and preparation of bibliography). Environmental Conservation Education: A Selected Annotated Bibliography. Danville: The Interstate Printers and Publishers, Inc., 1974. 70 p. (A supplement was published in 1975 and the second supplement is scheduled for publication by January, 1977.)

Mortensen, Charles O. Interpretive Reflections. Muncie, Indiana: Calbreath's Printing Service, 1976. 71 p.

Van Meter, Donald E. The Resource Manager's Guide to Conservation/Outdoor/Environmental Education. Muncie, Indiana: Department of Natural Resources, Ball State University, 1976, 58 p. (currently being revised and should be available from a publisher later).

Funding Sources:

Funding for planning and establishing the Natural Resources Program was provided entirely by the State of Indiana as an integral part of the Ball State University budget. This continues to be the primary source of funds for the Department of Natural Resources. Also, a special appropriation has included approximately $1.5 million to remodel the West Quadrangle building which will provide space for the Departments of Natural Resources and Journalism to be occupied in March, 1977. Very limited external financial support has been provided for the Natural Resources Program from money contributed by a few individuals to the Ball State University Foundation.

Other sources of funds have included: (a) a National Science Foundation equipment matching grant, (b) a research grant from the Office of Water Research and Technology, Department of Interior, and (c) a grant from the Indiana Committee for the Humanities.

Evaluation:

To date an extensive and formal evaluation has not been made of the Natural Resources program. However, a graduate student, Mrs. Pam Popovich, is making a detailed study of the history and development of the Natural Resources program which will serve as the basis of her Master's thesis at Southern Illinois University. This has included the preparation and mailing of a questionnaire to 215 alumni to determine the present occupation of each graduate and to find out, if possible, how well Ball State University is preparing people for careers in Natural Resources and related areas. Hopefully, the information provided by this questionnaire will be useful in evaluating the program.

Plans for the Future:

The need for new courses and curricula is continuously being explored. New courses added during the 1975-76 school year included (a) Wilderness and Society: Perception and Management, (b) Principles of Wastewater Treatment, and (c) Solid Waste Management. Also during that period a new interdisciplinary teaching minor in environmental conservation was approved by the Indiana Teacher Licensing Commission.

The Department of Natural Resources is currently involved with other academic units at Ball State University in developing a long range academic plan. This is conceived as a continuous process based on the belief that the future can be anticipated, described and shaped by intelligent and informed action. It is anticipated that the total university plan will serve as the basis for determining resource allocations.

Following renovation, scheduled for completion in March, 1977, the Department of Natural Resources will occupy more than 14,000 square feet of space in the West Quadrangle Building. This modern facility will enable the Department to continue to improve the quality of instruction, place more emphasis on faculty and student research, and to accommodate larger number of students.

New courses are currently being developed in the areas of air, soil and water resources and in the area of environmental education. New curricula currently being explored include water and wastewater technology, energy resources management, and possibly an option in air quality control. Also an area of endorsement in environmental conservation for elementary education students and a Master of Arts in Education with a major in environmental education with Teachers College at Ball State are being considered.

---Clyde W. Hibbs
October 1976

1973 DIRECTORY REFERENCE: p. 190

1975 DIRECTORY REFERENCE: p. 35

TOTAL ENVIRONMENT EDUCATION

Dr. Glenn R. Linnert, Project Director, New Albany-Floyd County Schools,
802 East Market Street, New Albany, Indiana 47150.

Overall Purpose: To demonstrate a model way of implementing environmental education into K-12 classes using a multi-disciplinary approach, while not disturbing or adding to the current curricula.

Specific Objectives: (a) Given an opportunity to participate in inquiry-mode training workshops conducted by project staff, administrative personnel and teachers will design and implement a multi-disciplinary environmental program in their school; (b) As a result of instruction in environmental education and teaching techniques, teachers involved will design process/inquiry environmental experiences appropriate to their own classes.

Target Audience: Teachers of K-12 and their students.

Methodologies: Training is provided in curriculum development, inquiry teaching, and the development and use of environmental dilemmas.

Materials Produced: K-6 environmental activities booklets, 7-12 environmental activities booklets, a self-instructional module for curriculum development, and a self-instructional module for inquiry teaching.

Funding Source: ESEA Title III Innovative and Exemplary programs of the Indiana State Department of Public Instruction.

Project Evaluation: An analysis of covariance was used to analyze the pre-test, post-test results of experimental and control groups of students, using teacher scores as a covariant. Areas assessed were the change in factual and affective knowledge and attitudes of teachers and students. While the change in cognitive, factual knowledge was not significant at the .05 level, the affective attitudinal change in students over a five month period was significant at the .01 level. Published reports of this data are available only through State ESEA project headquarters as they were prepared for National Validation.

Plans for the Future: Workshops are continuing both within and outside the State of Indiana through the funding of ESEA Title IV-C Great Lakes Facilitators networks. Prepared materials have been sent to over 400 school districts across the nation. Such mailings will continue through 1977.

---Glenn R. Linnert
October 1976

1973 DIRECTORY REFERENCE: pp. 192-193

1975 DIRECTORY REFERENCE: p. 36

SELF-EARTH ETHIC

John W. Hart, Director, Extended Services, Hayes Regional Arboretum,
801 Elks Road, Richmond, Indiana 47374.

Self-Earth Ethic (SEE) is available in four levels. The major topics of the levels follow:

Level One: awareness, introduction to sun, air, water, and soil.

Level Two: how living things meet their needs, "caring" for natural resources.

Level Three: producer, consumer, decomposer interrelationships; minerals; what if everybody did.

Level Four: starting to classify, mapping, conservation.

These are teacher guides to environmental science which present indoor and outdoor activities. The activities are "doing" activities which stimulate awareness, explore the interrelatedness of things, and help the child to understand that what he does directly influences "the way he wants things to be."

SEE has been copyrighted and is available from the Interstate Printers and Publishers, Danville, Illinois 61832.

These materials are being used as part of the science program in the Indianapolis Public Schools under the direction of Dr. Magdalene A. Davis, Conservation Consultant.

Self-Earth Ethic is a support project of the Stanley W. Hayes Research Foundation, Richmond, Indiana 47374.

---John W. Hart
October 1976

1973 DIRECTORY REFERENCE: pp. 196-198

1975 DIRECTORY REFERENCE: p. 37

ERIC DOCUMENTS:

1. Self-Earth Ethic (SEE). A Life-Centered K-12 Curriculum Guide for Environmental Education. Level One. ED 070 602
2. Self-Earth Ethic (SEE). A Life-Centered K-12 Curriculum Guide for Environmental Education. Level Two. ED 086 475

MUSCATATUCK NATIONAL WILDLIFE REFUGE

Muscatutuck National Wildlife Refuge, P.O. Box 631, Seymour, Indiana 47274; (812)522-4352. Staff: Charles E. Scheffe, Refuge Manager (812) 522-6768; Leroy E. Hovell Jr,, Assistant Refuge Manager (812)522-4502; Edward F. Wagner, Biological Technician and Environmental Education Coordinator (812)522-7296; Linda Maglothin, Clerk-Stenographer (812)522-9601.

To better understand environmental education as provided by a National Wildlife Refuge it is first necessary to define terms. Environmental education as defined by the Environmental Education Act of 1970 is a style or approach to teaching, conducted by professionals, in which students participate in environmental learning situations where they are actively involved in problem solving situations. It deals with man's relationship with his natural and manmade surroundings; it is curriculum spanning and multi-disciplinary, dealing with the interrelationships of all things. This included "conservation education" or the development, management, preservation, and renewal of natural resources for the benefit of man. Its orientation is more restrictive than that of environmental education. Interpretive education programs are distinctly separate despite similar objectives and philosophical overlap. They are usually directed to the casual visitor or general public with optional participation and occur during leisure or recreational time rather than within a school curriculum.

> "Environmental education is both a new subject area (the environment) and a new approach to learning. It is aimed at increasing one's awareness and understanding of his environment by using the natural and manmade world as a source of teaching materials. It removes a major barrier between the student and the world around him and teaches him to relate to the world directly, rather than to someone's interpretation of it in a textbook. It is oriented towards processes and problem solving and its approach is holistic, encompassing all disciplines and stressing the inter-relatedness of problems of the environment to people. In its broad approach, environmental education contradicts the modern Western educational

tradition of dividing learning into separate disciplines. It is a unifying and thus a reform concept."[1]

Several major objectives of the Wildlife Refuge have been established:

1. To assist in the development of an environmental stewardship ethic for society, based on ecological principles, scientific knowledge of wildlife and a sense of moral responsibility.

2. To assist and guide the conservation, development, and management of the nation's sport fish and wildlife resources.

3. To develop a national program to provide the American public opportunities to understand, appreciate, and use the fish and wildlife resources.

Available Natural Resources:

Muscatatuck National Wildlife Refuge, operated by the U.S. Fish and Wildlife Service of the Department of the Interior, is the only national wildlife refuge in Indiana. Marsh, forest, and croplands totaling 7,702 acres were acquired through the sales of the Federal Migratory Bird Hunting Stamp. The general tax fund supports maintaining and developing the Refuge. The primary purpose of the Refuge is to provide a protected area for migrant birds to rest and feed during migration. Because waterfowl are hunted all along their flyway, the Refuge is particularly beneficial to them. The site of the Refuge was selected in part because traditionally this area has had large numbers of nesting wood ducks. The Refuge is presently developing more habitat to enhance the area for increased wood duck production. The land is easily eroded and many fields have been left to the forces of natural succession. This improved habitat has increased the population of small mammals which in turn has encouraged larger numbers of raptors and terrestrial predators. The diversity of foraging species now offers observers more opportunities to view and understand important predator-prey relationships. Lowland fields are planted to wildlife foods such as buckwheat and millet by sharecroppers. Shallow levees are constructed to capture fall rains that will flood these crops. This enhances the area for waterfowl feeding. Prior to government ownership, much timber was removed. This stimulated new forest growth, improving deer browse and cover. The deer population increased greatly. Now Refuge visitors frequently catch a glimpse of a white-tailed deer. The forest areas include about 3,400 acres in which a variety of mixed hardwoods may be found. The most common trees are tulip poplar, beech, maple, and oak in the uplands. Bottomlands are covered by sweetgum, sycamore, river birch, ash, and pin oak. Resident flocks of Canada geese and mallards are present for year-round observations and photography.

A recently completed Visitor Information Center contains interpretive information, a moderately sized auditorium, and sophisticated audio-visual equipment for presentations to the general public. Facilities exist for the physically handicapped. Foot trails are designed for large groups or individuals who may wish to discover and observe waterfowl and wildlife. Visitors may also follow an auto tour route. Waterfowl observation blinds are strategically located for waterfowl photography. Future development will occur as funds become available. A 600-acre impoundment is planned for waterfowl as well as other smaller impoundments and a paved auto tour route. A ten-mile bicycle path will encourage cyclists to ride where they won't have to compete with automobiles and can glide quietly by wildlife. More foot trails are planned.

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[1] Brezina, D. N. and Allen Overmyer, Congreee In Action--The Environmental Education Act, (New York: The Free Press, 1974).

Services Available:

The wildlife Refuge can best assist in environmental education by making its resources of lands and personnel available for educational use by the visiting public and educational institutions. An elucidation of these services and programs follows.

State and community-wide contact with people and agencies is necessary to acquaint the public with the Refuge's services. Outdoor education and planning assistance has been offered to surrounding communities.

The Refuge accomodates group activities such as discovery hikes and tree plantings with Girl Scouts, 4-H clubs, school groups, and Future Farmers of America. The Refuge cooperates with state personnel in providing wildlife management advice and technical assistance. Graduate studies in wildlife management and related fields are greatly encouraged. Permanent staff are involved in environmental awareness training to the temporary personnel and special work groups such as the Comprehensive Employment Training Act, the Summer Program for the Employment of Disadvantaged Youth, the Youth Conservation Corps, and Green Thumb of Indiana. The recently acquired audio-visual equipment has made possible several slide presentations as teaching aids. Environmental study guides for teachers are available at the Refuge.

School site development projects have required Refuge staff and teachers to work and plan together. How to develop a trail so that soil erosion doesn't occur and how to involve students in planning and deciding where to have trails are questions that have been asked in the planning process.

In the spring of 1976 the Refuge, in cooperation with the Indiana Department of Public Instruction, Ball State University, and the Conservation-Outdoor Education Association, Inc., presented a two-day workshop to educators in southern Indiana. The workshop, "The Living Classroom", provided participants with the following experiences and resources:

1. Copies of EE investigations, activities, and guidelines;
2. Contact with local, state, and national resource leaders in the EE field;
3. Unlimited EE experience on a 7,702-acre living classroom;

4. Assistance in organizing an EE program in the school community; and
5. Support from the workshop staff to help design EE activities, inservice programs, and environmental areas.

Three hours of graduate credit through the Department of Public Instruction (Indiana) and Ball State University were available to the participants. A $2.00 fee covered the cost of refreshments. Leadership was provided by specialists with expertise in recognizing the needs of classroom teachers and the logistics of planning environmental encounters within school systems. Participants engaged in activities designed to strengthen sensory awareness. They were shown the use of investigative field tools; exercises included comparing the diversity of bird species with the diversity of habitat and comparing recent farm sites with long-abandoned areas. Opportunities also existed to learn more about and discuss alternatives to the environmental problems of urban America.

Community Needs:

Muscatatuck National Wildlife Refuge is a large natural area in southeast Indiana where the staff is formally involved and actively advocating environmental education. This area of the state has few public schools with environmental education integrated into the curricula. Located within an hour and one-half drive of three and one-half million people between Louisville, Cincinnati, and Indianapolis, Muscatatuck is challenged with the potential to serve large numbers of people within the tri-state area.

Evaluation:

Land acquisition occurred from 1966 to 1972. Within the four years since the final acquisition the Refuge has offered the public a variety of services. Environmental education as a refuge activity has not been in existence long enough to permit complete evaluation.

---Edward F. Wagner
October 1976

MULTIPLE ENVIRONMENTAL LITERACY PROJECT

Dr. Chris Buethe, Director, Multiple Environmental Literacy Project, Indiana State University, Department of Secondary Education, Terre Haute, Indiana 47809; (812)232-6311.

In 1974, a study conducted by Indiana State University under the direction of Dr. Chris Buethe showed that half or more of the Indiana teachers tested were unfamiliar with common environmental terms. Since these Hoosier teachers influence thousands of residents throughout the state, it was evident that an effort should be made to increase the environmental literacy of Indiana teachers.

From this previous evidence the Multiplied Environmental Literacy Project was conceived. Funding for the M.E.L. project was supplied under a grant from the U.S. Office of Education.

The overall purpose of the M.E.L. project is to access the increasing amount of environmental literacy as it desseminates from teachers to students. The initial target audience was the 49 Hoosier science teachers who participated in the project. These teachers ranged over the state of Indiana and included elementary and secondary teachers in general and biological and physical sciences.

Six highly qualified advisor-instructors were chosen on the basis of their relationship to the environmental terms in question. (44 terms were chosen for their significance). These six instructors met with the teachers for two days of intense environmental instruction. During the two seminars, the teachers received instructional kits on environmental education and interacted with fellow teachers regarding their methods of teaching environmental literacy.

Each teacher returned to his school and chose at least two qualified student tutors. Based upon that teacher's accumulated knowledge, the two student tutors were made familar with selected environmental terms. The tutors were then sent to a group of elementary students with the elementary host teacher present and allowed to instruct the elementary pupils and host teacher in regard to the selected environmental terms.

To evaluate the multiplying effect of the environmental literacy knowledge, a pre-test was given to each level or group. After instruction, a post-test was given to access the amount of environmental literacy increase. The results of these tests are expected to be published in The Journal of Research in Science Teaching and The Hoosier Science Teacher.

Related programs along the M.E.L. guidelines have already begun on the local level. Some teachers have expressed interest in continuing research and developing methods of instruction for environmental terms. Methods of instruction and audio-visual materials designed to enhance environmental literacy can be obtained from Dr. Buethe's office.

---Jerry D. Brown
Graduate Assistant
October 1976

ERIC DOCUMENTS:

1. Environmental Education in Indiana Public Schools. ED 114 273
2. The Status of Indiana Teachers' Environmental Knowledge and Attitudes. ED 121 571

ASHERWOOD

Michael Carrier, Director of Asherwood, Box 214, Route 3, State Road 124, Wabash, Indiana 46992; (219)563-8148; also Director of Environmental Education, Marion Community Schools, 121 East River Boulevard, P.O. Box 808, Marion, Indiana 46952.

Asherwood is a 160-acre outdoor/environmental education facility owned and operated by Marion Community Schools.

Overall Objectives: To serve as an outdoor laboratory for students of Marion Community Schools.

Target Audience: School-age children.

Methodologies: The integration of outdoor study into existing curricula, particularly science.

Materials: Locally relevant curriculum; not available for distribution.

Funding Sources: Site purchase made possible through citizen donations; operation funded by local school tax money.

Future Plans: Resident camping facilities, elementary camping program, secondary field biology/camping program, integration of environmental emphasis into all curriculum areas.

Program History:

1968-70: Title I-funded elementary camping program.

1972-73: HEW Environmental Education Grant: curriculum development, teacher in-service.

1974-present: Purchase and development of Asherwood and related curriculum.

---Michael Carrier
October 1976

1973 DIRECTORY REFERENCE: pp. 188-189

PROJECT ECO - AN ENVIRONMENTAL CURRICULUM OPPORTUNITY

Dr. Luther Kiser, Director; Assistant Superintendent for Curriculum and Instruction, Ames Community School District, 120 South Kellogg, Ames, Iowa 50010; (414)232-3400.

Project ECO, which has received Educational Pacesetter Awards from the PNAC, was validated during the 1972-73 school year through the Identification/Validation/Dissemination process sponsored by the U.S. Office of Education. The Project was adjudged innovative, successful in its mission, cost-effective and appropriate for adoption/adaption in other school districts. This validation, together with the three years' experience on the part of the Project ECO staff in in-service teacher training both with the regular Project program and with a National Science Foundation-funded series of environmental education teacher workshops, led to further Federal funding to serve as a developer-demonstration model.

The specific developer-demonstration Project had two major levels of activities: a) training and support activities with two "adopter/adapter" school districts in central Iowa; and b) activities to bring other school districts in Iowa and the nation to an awareness level which identified other potential adopter/adapter districts for the school year 1975-76.

Level One activities consisted of a series of workshops and inter-district visitations between Project staff and participants which started in August 1974, continuing during the school year 1974-75, and culminating with a workshop in June 1975. At the conclusion of these activities, the adopter/adapter districts had a written outline of the environmental education curriculum specific for that community, a plan for putting the curriculum into effect, and a trained cadre of six staff members who could direct the in-service development of other teachers in the district and who could provide continued support for program development.

Level Two activities centered on dissemination to both local and national interests in an effort to make others aware of the potential of such teacher in-service training in the area of environmental education.

Level One activities continued in the program during the past two years have caused interest to grow and workshops conducted in the immediate area and throughout the state have continued to draw large numbers of participants. At the present time two workshops are being offered for re-certification credit to area teachers and administrators in curriculum development.

Level Two activities will continue to center on dissemination to both local and national interests.

---Ken Frazier
Project Coordinator
October 1976

1973 DIRECTORY REFERENCE: pp. 199-201

1975 DIRECTORY REFERENCE: pp. 37-38

ERIC DOCUMENT:

Teacher Resource Guide, Project ECO. ED 080 344

ENVIRONMENTAL EDUCATION WORKSHOPS FOR TEACHERS AND ADMINISTRATORS

John Cordes, Project Director; Director, Division of Educational Services, Grant Wood Area Education Agency, 4401 Sixth Street, Cedar Rapids, Iowa 54201.

The overall purpose of these workshops is to develop more and better environmental education/studies activities, programs, experiences for students in school classrooms, or in the great outdoor classroom and hence a better understanding of and attitude toward the environment which in turn will develop better citizens better able to understand their environment, use it appropriately and exercise appropriate care for it and be better prepared to participate in decision making situations regarding environmental use and issues.

Grant Wood Area Education Agency received a grant (the second year in a row) from the Office of Environmental Education, Department of Health Education and Welfare, to conduct workshops, provide consulting visits and supply appropriate curriculum materials to area educators to encourage, further develop and facilitate environmental education. The above services provided free of charge to participants as the grant funds and some supplementary funds provided by Grant Wood Area Education Agency are sufficient to provide for food and lodging at the workshops, support for consultant visits with the participants as a follow-up to the workshops, and purchase a supply of certain appropriate environmental studies materials (Essence I, the Acclimatizing and Acclimatiziation books by Steve Van Matre, and OBIS I kits) for each participant their schools with their students. There are five components to the project:

- Weekend Workshop: held Friday evening through Sunday noon at Camp Io-Dis-E-Ca in Shueyville; meals and lodging free to participants; limited to 25 participants; designed to provide environmental education experiences for the participants; a neat, warm, friendly, relaxed experience, primarily designed to build interest in and involvement with "the environment".
- Follow-up late afternoon/early evening sessions - designed primarily to build familiarity with effective and appropriate curriculum materials.

-- Follow-up consultant visit to participants school - designed to help participants in developing their environmental education program.

-- Use of one of the traveling libraries for two one-week periods to allow the participants the opportunity to use the materials first hand with their students at sites chosen by them and appropriate to their goals.

-- A synthesis session - probably held late afternoon, mid-spring to allow participants to share experiences, discuss successes, problems, modification, plan for the future, view new resource materials, etc.

The maximum number of participants that can be accommodated this year is 100. (Four workshop groups of 25 each). Registration is on a first come first served basis. Teams of teachers and a principal from each school are encouraged. Participants from all grade levels and all disciplines are welcome and encouraged to attend. It is anticipated that optional college credit or recertification credit will be available to participants in the project.

The program uses materials selected from many disciplines and many sources because true environmental education/studies is an all encompassing area. Resources used will include (ACC) Acclimatization, Essence, Literature, OBIS, Poetry, Visual Education materials, Split Brain, Native American Oriented views of the environment, and National Geograph's Sound-Filmstrip series. No particular subject discipline or grade level are emphasized. Resources are many and varied and all participants should be able to find adequate resources and experiences for personal growth and use with their students.

Plans for the future include:

Continuation of this specific project next year if funding is received.

Inclusion of lay persons and high school students in the program (next year) to train a cadre of lay naturalists available to schools (and other groups).

Expansion of the Astronomy portion of the workshop to a full Astronomy workshop to be held during the months of February and March 1977 and be repeated in June 1977.

Development of an Environmental Literacy Workshop. The pilot version will be conducted during the spring of 1977 and then the full workshop will be conducted during the academic year 1977-78.

Involvement of many of the workshop participants in other activities conducted by the agency to further develop their involvement and interest in the environment and competency in providing students with meaningful and appropriate experiences. Two of these workshops to be conducted this year are:

An Acclimatization Workshop conducted by Steve Van Matre.

Minnesota Schussboom which is a winter ecology/low impact use of the environment/natural resources exploration workshop to be conducted in Northern Minnesota.

Providing an appropriate and complementary environmental studies workshop/course for three weeks during the summer of 1977.

---Gerry MacMillan
Environmentalist
October 1976

OSBORNE CONSERVATION EDUCATION CENTER

Don R. Menken, Executive Director, Clayton County Conservation Board, Osbourne Conservation Education Center, Elkader, Iowa 52043; (319) 245-1516.

There is a Visitor Center with many exhibits on ecology/environmental concepts. Three trails are available; The Nature Trail, The Conifer Trail, and the Soil Conservation Trail. A live animal exhibit includes bison, elk, deer, several species of waterfowl and game birds. A Pioneer Village is being developed which will depict and interpret pioneer life.

We have Trail Guides for use on each of the three trails. These Trail Guides are available at cost. We have no commercial association.

1. Number of schools using materials: 50.
2. Number of teachers using materials: 80.
3. Number of teachers using some of the materials: 150.
4. Total number of students using materials in 1975: 8,500.
5. Names of some of the schools using the materials:
    a. Central Community Schools, Elkader, Iowa
    b. M-F-L Community Schools, Monona, Iowa
    c. Starmont Schools, Strawberry Point, Iowa
    d. Garnavillo Community Schools, Garnavillo, Iowa
    e. Guttenberg Community Schools, Guttenberg, Iowa
    f. Ed-Co Community Schools, Edgewood, Iowa
    g. Valley Community Schools, Elgin, Iowa

Teacher Preparation:

1. Consultation services for teachers: Yes.
2. In-service for teachers: Yes, in co-operation with Area Education Agency.

3. Pre-service for teachers: Yes.
4. Kinds of teacher preparatin available: Exposure to area and materials.
5. Availability of pre-service and/or in-service teaching materials for educators: Being developed at this time.
6. Teaching materials available commercially: No.

Materials Evaluation:

1. The materials and techniques have been evaluated by those using them.
2. There have been no published research studies done on our materials.

Project Summary:

We have accomplished our primary goal of providing a learning center for the comprehensive appreciation of ecology/environmental concepts. Schools from nineteen counties are using the facility. Our displays and exhibits are open to the public and are heavily used all year long.

Plans for the Future:

We continue to expand our facility to handle more diverse interests and are attempting to upgrade our learning materials constantly. Many ideas that were only concepts two years ago are now usable programs of the Center. We are in the process of developing more education guide books and materials and are entering a more intense teacher training program.

---Don R. Menken
October 1976

1973 DIRECTORY REFERENCE: pp. 210-211

1975 DIRECTORY REFERENCE: p. 39

CONSERVATION EDUCATION CENTER

Robert P. Rye, Jr., Administrator; Conservation Education Center, Route 1, Box 44, Guthrie Center, Iowa 50115.

Iowa Conservation Commission's Conservation Education Center is located adjacent to Springbrook State Park in Guthrie County. Operation began in spring of 1971. There are six full-time and five part-time employees.

The overall purpose is teaching conservation and wise use of natural resources. Specifically: to instruct the visitors and program participants in the wise use of resources, natural and man-made; to develop in natural settings within each individual a concern, awareness, and interest in the environment as a whole through direct experience; to build within each individual an environmental ethic and a resolve to seek solutions to problems confronting man through direct experience; to show interrelationships and interdependency between man and the natural world; to provide a setting and facility for learning conservation and conservation education; to promote, build, support, and publicize Iowa Conservation Commission programs, objectives and policies; to act as a center for the sharing of ideas, information, training, research, and enjoyment for the lay public, school, colleges, conservation-oriented groups and in-service training for the Iowa Conservation Commission personnel.

Materials produced consist of class handouts, slide programs, lesson plans and programs used at the Center and shared with teachers using the Center. These are used and modified to reach all age levels. The programs range from one to ten days in length and the Conservation Education Center is open year-round. Consultant services are available for teachers and others so desiring.

The existing modern brick facilities consist of two dormitories, a dining hall, a maintenance building and classroom-office building. Within these are a library; a display room containing mounted animals, rocks, invertebrates, artifacts, bird nests and eggs, and wool; and laboratory areas. Use is made of streams, a lake, lagoons, prairie, forests, and three miles of nature trails, located around the Center's facilities.

One additional dormitory is presently under construction at the Center. An outdoor classroom is currently being developed to augment the existing natural surroundings of 850 acres. This classroom consists of a soil conservation practices area including ponds, terraces, waterways; a native grass area; an arboretum with a blind trail; a wildlife plantings section; and nature trails throughout the newly developed area.

---Robert P. Rye Jr.
October 1976

1973 DIRECTORY REFERENCE: pp. 212-214

1975 DIRECTORY REFERENCE: p. 39

SHAWNEE MISSION ENVIRONMETAL SCIENCE LABORATORY

Dr. H. Dean Jernigan and Mr. Jerry P. Murray, Co-Directors; 5800 West 107th Street, Shawnee Mission, Kansas 66207.

Purpose: The purpose of the program involving the environmental science laboratory is to develop within the children of the community an environmental ethic. Our major thrust is the development of appropriate affective behaviors. Cognitive strategies are used only if through them an affective goal can be attained.

Objectives: We try to conduct a program that will draw as many children to the lab as possible. At the lab students learn not to disturb even the most insignificant item; they feel, smell, and listen to things that they have never experienced before. This is done by direct experience and example, rarely lecture.

Target Population: Between five and six thousand elementary and high school students use the lab each year. Under present personnel and structure that is about all that can be effectively managed.

Methodologies: High school students are trained as naturalists to work with the elementary students. Presently there are two classes or a total of fifty student-naturalists. Each tour group is limited to five children. This gives us a large instruction pool, small individual contact and since it isn't the normal adult-teacher-to-child interaction, a special rapport develops that compensates for any lack of expertise.

Materials: The professional staff spend most of their time on organization and instruction. Software production is left to the individual student naturalist. They design the appropriate materials for their own unique activities.

Funding: The local school district provides part of the funds and the rest comes from a non-profit organization that collects newspapers for recycling.

Evaluation: The program has developed from a base of a dozen guides trained informally and 300 visiting children, to a program specifically designed for the development of naturalists and a clientele of over 5,000. Other than the obvious evaluation by the district teachers, no formal studies have been done at the elementary level. A formal evaluation comparing outdoor and indoor teaching strategies has been conducted at the secondary levels.

(October 1976)

1973 DIRECTORY REFERENCE: pp. 222-224

1975 DIRECTORY REFERENCE: pp. 30-40

ENVIRONMENTAL EDUCATION

Dr. Ernest G. Thro, Hardin County Board of Education, 110 South Main Street, Elizabethtown, Kentucky 42701.

The materials are out of print at the present time.

---Ernest G. Thro
October 1976

1973 DIRECTORY REFERENCE: pp. 241-242

1975 DIRECTORY REFERENCE: pp. 43-44

ERIC DOCUMENT:

An Approach to the Teaching of Environmental Science. ED 099 182

ABRAHAM LINCOLN BIRTHPLACE NATIONAL HISTORIC SITE

Nick Eason, Superintendent, Abraham Lincoln Birthplace National Historical Site, Route 1, Hodgenville, Kentucky 42748; (502)358-3874.

Abraham Lincoln Birthplace NESA includes 116½ acres of which 100 acres are a part of the original Sinking Spring Farm where Lincoln was born. A visitor center, the traditional Birthplace Cabin, and two natural landmarks, the Sinking Spring and Boundary Oak, are of prime interest. The main school use area is rolling terrain with flora illustrating plant succession from grasslands to mature forest. Picnic tables, water, restrooms facilities, and 2½ miles of natural history trails are available.

Generally the program attempts to blend history and nature together to create in the students an awareness and attitude of respect for their cultural and natural environment. Specifically the program attempts:

1. To introduce the student to his total environment, past and present, and help him realize that he is a part of it.

2. To develop in the student an understanding of how man is using and misusing his resources.

3. To provide an opportunity for the student to work directly with environmental problem solving.

4. To equip the student to be a responsible member of the world that he is shaping and that is shaping him.

The program was designed primarily for elementary grades but the area is available to all interested groups and grade levels.

Park staff provides leadership workshops for school personnel, works with school systems to establish school site ESA's and coordinates use of the area.

Materials currently being produced for use of the ESA include a teacher's guide, trail maps, dual purpose guide leaflets for school groups and park visitors, and an orientation slide program.

---Gary V. Talley
December 1976

SYMPOSIA ON ALTERNATIVES FOR URBAN WASTE DISPOSAL

Kathleen Higgins, Director, Environmental Education Project, Kentucky Manpower Development, Inc., 2255 Frankfort Avenue, Louisville, Kentucky 40206; (502)897-6511.

This environmental education project is sponsored by Kentucky Manpower Development, Inc. through a grant from the Office of Education, Department of Health, Education, and Welfare.

The project is designed to bring information regarding an impending solid waste crisis to the people of Louisville and Jefferson County. The four main objectives are: (a) To compile all existing information regarding solid waste management in the community; (b) To bring together representatives of the many local and state agencies, the operators, and the environmental groups involved with solid waste management to consider possible alternatives; (c) To provide expert consultant advice and assistance to state and local persons responsible for solid waste disposal and/or its regulation; and (d) To disseminate the information to the community and to acquire public support for developing alternatives.

The method utilized to meet these objectives and reach a broad spectrum of people includes an agency conference with a follow-up series of five neighborhood symposia. The agency conference was designed to bring together people involved in the solid waste management system to discuss the present situation and the future alternatives. Information and alternatives developed at the conference will then be presented at neighborhood symposia for discussion by community participants. The results of the conference and symposia will then be disseminated to the community at large utilizing the mass media.

It is anticipated that this project will benefit the community by providing a comprehensive approach in gathering information about the problem of solid waste disposal and possible alternatives; providing an opportunity for all involved agencies and groups to discuss the issues and benefit from consultant advice; aiding the community in increasing its knowledge of the problems and in choosing alternatives appropriate to the community's needs; and developing a comprehensive learning process through which members of many disciplines together with the community address themselves to the problem and possible alternative solutions and consider options for solving a specific community problem.

A final evaluation will seek to determine the extent to which alternatives have been developed, the effectiveness of the pilot educational approach, and the value of informational content distributed.

---Kathleen Higgins
October 1976

ONYX MEADOWS NATIONAL ENVIRONMENTAL STUDY AREA

Jay E. Cable, Assistant Chief Park Interpreter, Mammoth Cave National Park, Mammoth Cave, Kentucky 42259; (502)758-2251.

Overall Purpose:

Great Onyx NESA provides a physical site where a student can apply his classroom learning experience to the actual surroundings outside the classroom.

Specific Objectives:

1. To introduce students to their total environment, cultural and natural, past and present, and help them realize that they are part of it.

2, To promote an understanding of how man is using his resources.

3. To equip students to be responsible members of the world they are shaping-the world that is shaping them.

Target Audience:

Area can be used by teachers or students of all ages. Advance reservations are required. Day use and overnight camping facilities are available. Consists of a trail along the edge of a forest in an open field showing man's impact on the land. Cave ecology is also examined.

Teaching Materials:

Free teachers handbook available on Onyx Meadows.

Teacher Workshop:

One and two day workshops, available upon request.

Plans for the Future:

Keep program as active as available manpower will permit.

(December 1976)

CUMBERLAND GAP NATIONAL HISTORICAL PARK

Superintendent or Park Naturalist, Cumberland Gap National Historical Park, P.O. Box 840, Middlesboro, Kentucky 40965; (606)248-2817; Director, Union College Environmental Education Center (NEED), Route 2, Middlesboro, Kentucky 40965; (606)248-3613.

Two NESA's are currently considered active at Cumberland Gap National Historical Park. Teachers guides were developed for both in 1971. However, due to the establishment of a residential NEED Center and development of on-site environmental education in the Middlesboro, Kentucky and Bell County, Kentucky Schools, they have received little use since spring of 1972. The only exception is the Sugar Run Environmental Day Camp sponsored by the Park for ten weeks each summer since 1974.

The NEED Center is operated under a Special Use Permit, within the Park, by Union College of Barbourville, Kentucky. The Center currently offers week-long environmental programs to approximately 2500 children in elementary and secondary school-related activities. Additionally the Center offers its services to approximately 3500 persons associated with other groups or schools, i.e. churches, colleges, Appalachia programs, etc.

Individual activity plans for the Sugar Run Environmental Day Camp and an activity selection form have been developed. Lesson plans are written for individual programs (identified on the activity selection form), each year following the same format as the individual activity plan. The lesson plans are changed each year to keep the program dynamic.

Target Audience:

Children in the third to eighth grade age groups and mentally handicapped participants of any age over eight years.

Materials Produced:

Only lesson plans which are revised on an annual basis.

Program Evaluation:

The program is self-evaluating. A seminar-like program is held at the end of each week to evaluate what has been accomplished. The results to date are encouraging. As this is a coal mining area and many families, incomes come from strip mining, Environmental Education is often frowned upon. We find, however, that our efforts are long-lasting and that enthusiasm for the program is expressed by the participants we have spoken to, as much as a year later.

Plans for the Future:

The program will be continued each year, as long as participation is good and we feel that the program is still accomplishing its objective.

(December 1976)

1975 DIRECTORY REFERENCE: pp. 324-326.

ENVIRONMENTAL INFORMATION DISSEMINATION

Dr. Jerry F. Howell, Jr., Director, Center for Environmental Studies,
UPO 780, Morehead State University, Morehead, Kentucky 40351;
(606)783-3328.

Since July, 1974, the Center for Environmental Studies has expanded and continued to carry out programs originally funded by the Office of Environmental Education, Department of Health, Education and Welfare. The present functions of the Center are to:

1. Disseminate environmental education information to regional schools, groups, organizations and libraries.
2. Promote teacher pre-service and in-service education through workshops and formal classes.
3. Assist the Kentucky Department of Education and the Kentucky Environmental Education Advisory Committee in its work with environmental education.
4. Propose and promote student-originated studies concerned with the environment.
5. Maintain the presently healthy academic majors and minors enrolled at the University.
6. Act as a regional clearinghouse for environmental information and resources.

Although some minor professional articles have been published concerning past grants, the major publication of the Center, co-authored by Dr. Jerry F. Howell, Jr., and Ms. Jeanne Osborne, remains the November, 1975 book, A Selected and Annotated Environmental Education Bibliography for Elementary, Secondary and Post-Secondary Schools. This 344-page book has seen wide usage; it has been purchased by about 500 school systems, libraries, and public agencies. It is available for $3.25 postpaid ($3.00 each for orders of 10 or more). Purchase orders, checks, or money orders should be made payable to Morehead State University, but mailed to Dr. Howell at his above address. The book is divided into colored paper sections (K-6, 7-9, 10-14), each representing an ecological subject. There is also a directory of publisher addresses, along with names and addresses of citizen organizations, governmental agencies and professional groups. The book will probably be revised and updated in 1978.

---Jerry Howell
October 1976

1973 DIRECTORY REFERENCE: pp. 246-247

1975 DIRECTORY REFERENCE: p. 46

ERIC DOCUMENT:

A Selected and Annotated Environmental Education Bibliography for Elementary, Secondary, and Post-Secondary Schools. ED 118 379

ENVIRONMENTAL EDUCATION PROGRAM

Isadore Inman, Jr., Director; St. Martin Parish School Board, 305 Washington Street, St. Martinville, Louisiana 70582; (318)394-6967 or (318)394-6162.

Project History:

1. Principal Originators; Staff members of the St. Martin Parish School Board.
2. Date and Place of Initiation: June 1, 1972--Science Center, St. Martinville, Louisiana.
3. Overall Project Purpose:
    a. To hold workshops to help teachers develop skill and competence in teaching environmental activities.
    b. To assist teachers in implementing environmental education in the existing curriculum.

Project Objectives:

1. To help students acquire a basic understanding of the natural and man-made component of the biophysical environment.

2. To understand man's relationship with his environment.
3. To acquire basic understanding of associated environmental problems.
4. To help students acquire strong feelings fundamental to developing a concern for the quality of the environment.
5. To help students develop critical thinking and action skills necessary for them to help prevent and solve environmental problems.

Materials Produced:

Environmental Curriculum Guides; Grades K-12, Revised Edition. Price is $4.50 each.

Funding Sources:

The original funding for curriculum development (1971-74) was provided by ESEA Title III (Federal). The continuation funding is provided by the St. Martin Parish School Board.

Implementation:

In the summer of 1974 a series of in-service workshops were held to introduce teachers to the methodology of environmental education. These workshops played an important role in helping teachers introduce environmental education into the various schools during the 1974-75 school session. The curriculum guides were written so that they could be used by any teacher, regardless of his educational background. The units of study for each grade level may be used in their entirety or in part, depending on the needs and abilities of the teacher and students, and on factors such as location of the school, availability of transportation for field trips, and availability of laboratory facilities.

Special facilities or activities available for visitors viewing are a nature trail and planetarium.

---Isadore Inman, Jr.
October 1976

1973 DIRECTORY REFERENCE: pp. 265-266

1975 DIRECTORY REFERENCE: p. 50

ERIC DOCUMENTS:

1. A Comparative Study of Science Academic Achievement of Senior High School Participants and Non-Participants in an Outdoor Educational Center - St. Martin Parish. ED 099 197
2. Environmental Education Curriculum Development, Grades K-11, For St. Martin Parish. ED 100 676
3. Environmental Education Curriculum Development, Grade 6, For St. Martin Parish. ED 100 712.

PROJECT TREE

Ms. Dorothy D'Alessandro, Project TREE Director, Brookside Elementary School, Drummond, Maine 04901; (207)873-0695.

Project TREE, Teaching Respect through Environmental Education, is a Title IV three-year federally funded program that is now in its last year of operation. The program was designed to improve the attitudes and behavior of elementary school pupils so that they will become concerned, responsible citizens committed to solving environmental problems. Specific objectives of the program include:

1. The acquisition by students of concepts, attitudes, and skills associated with the total environment as evidenced by an average gain of 15 percentile points on environmental education tests.
2. Improvement of student attitudes toward self, others, and toward school as evidenced by an average gain of 30 percentile points on measures of self-concept and motivation.
3. Improvement of the effectiveness of teachers in utilizing the Glasserian philosophy of dealing with behavior-disoriented children as evidenced by a 50% decrease in the number of incidents of behavior disorientation reported to the principal.
4. A decrease in the number of reported incidents of vandalism as evidenced by a 15% decrease as measured by the S. Bennett Vandalism Survey.

More than 600 pupils at Brookside Elementary School participate in the classroom programs and study the development of the school's 28-acre site as well as the environment of the neighborhood, community, and region. This approach provides an opportunity for everyone to unite in scientifically and socially oriented activities, pointing out the interrelationships of all living things.

The humanizing philosophy of William Glasser's Schools Without Failure has been combined with a school-wide multidisciplinary approach to environmental education. The principles of Glasser's Reality Therapy, emphasizing human involvement, problem-solving, and the acceptance of personal responsibility, are applied to motivate both students and teachers to work together more effectively.

Curriculum guides containing activities designed to reinforce basic concepts in the cognitive as well as the affective domain are available at the primary and intermediate levels. A slide presentation giving an overview of the program is in the process of being developed.

The evaluation design of the program is pre-post comparison study with an experimental and control group. The Yarmouth Maine Environmental Education Pre-Post Test is being used to measure the acquisition of concepts, attitudes, and skills associated with the study of man. The Self-Concept and Motivation Inventory (SCAMIN), Person-O-Metrics, Inc.

and the Attitude Toward School Inventory, Behavioral Objective Exchange, are being used to measure attitudes toward self, others, and toward school.

These data are presently undergoing analysis and will be available at a later date. A behavior rating scale is being used to record the number of incidents of behavior disorientation. From September 1975 to September 1976, a 65% decrease in the number of incidents of misbehavior reported to the principal has been noted, thus indicating that a greater percentage of teachers are better able to handle behavior disorientation themselves. The S. Bennett Vandalism Survey is being used to measure the number of reported incidents of vandalism at Brookside School, with a 52% decrease in the number of reported incidents of vandalism being noted from April 1975 to April 1976.

Project TREE is unique in that it combines an affective and cognitive program; it provides for a curriculum which stresses strengths and positive identities; it allows for student participation in the decision making process; it provides an opportunity for students, parents, and other community members to work together for the promotion of efficient and effective development of a school side; and it focuses on issues of vital public concern--environmental protection--and therefore, has limitless implications for the future by developing responsible citizens committed to solving environmental problems.

Project TREE is now in its last year of federal funding. There are no specific plans for continuance at the local level at this point in time.

---Dorothy D'Alessandro
November 1976

ENVIRONMENTAL ENERGY EDUCATION PROJECT, MAINE AUDUBON SOCIETY

Jonathan W. Gorham, E.E.E.P. Director, Maine Audubon Society, Gilsland Farm, 118 Old Route One, Falmouth, Maine 04105; (207)781-2330.

The purpose of the Environmental Energy Education Project is to equip builders, bankers and high school teachers with the skills and information necessary to further the implementation of alternate sources of energy through their professions. The project stresses community education programs aimed at the present road blocks in the delivery of energy-efficient housing:

1. The lack of skills in the building trades to use alternate energy in residential construction.

2. The reluctance of financial institutions to explore the funding of innovative housing design.

3. The lack of alternate energy training opportunities in existing educational institutions such as high schools and vocational schools.

The major goals of this project are:

1. To prepare science teachers and environmental educators of all levels with the information and teaching materials to present the practical use of energy from alternate sources such as the sun, wind, wood and waste disposal systems as an integral part of any science program.

2. To introduce high school industrial shop teachers and vocational instructors to the level of expertise required in the construction of alternate energy components such as composting toilets, wood furnaces, and solar collectors. The intention of this program is to equip students with the plumbing, carpentry, and wiring skills required in the installation and repair of alternate energy equipment.

3. To introduce, through a series of technical workshops presented to members of the building trades, the skills and information prerequisite to construction and installation of alternate energy components. The intent of this aspect of the project is to insure the availability of trained tradespeople experienced in the installation and on-site construction of alternate energy equipment.

4. To demonstrate to representatives of the state's lending insitutions the workability of alternate heating systems in residential housing, thus addressing reluctance of such organizations to make funds available for the construction of these houses. This program will examine the questions of component durability, building integrity, the economics of heating and construction and resalability, with the intention of reducing the uncertainties that surround the funding of energy efficient construction.

5. To ensure that the information prepared for presentation in the above programs is available beyond the individual workshop program. This will be accomplished through the compilation of a curriculum guide for environmental educators and an alternate energy source book for both building and banking industries.

The implementation of this project will complement activities in this area already underway at Maine Audubon. The new headquarters of Maine Audubon, scheduled for completion in June, will be the first alternately heated building in Maine to be open to the public and the first building in the nation to make use of an integrated solar and wood-heat system to supply the entire heating load. With this facility as a teaching tool to show building techniques and installation of the heating systems, Maine Audubon will be fully equipped to educate potential builders to the incorporation of alternate energy components into housing design and construction.

In addition, the Maine Audubon Alternate Energy Network is an existing program set up to handle requests for information about the new headquarters and alternate energy in general and to serve as a center for information about the development of alternate energy in Maine. In October 1975 Maine Audubon drew together many of its personnel resources from throughout New England to sponsor a day-long conference to address the use of alternate energies in home building. Over 2500 participants gathered to view 13 workshops and 25 exhibits designed to introduce homeowners to the current state of alternate energy technology.

---Jonathan W. Gorham
November 1976

ASSATEAGUE ISLAND NATIONAL SEASHORE

Assateague Island National Seashore, Rt. 2, Box 294, Berlin, Maryland 21811; (301)641-1441.

Assateague Island National Seashore participates in the National Park Service's NESA program with two study areas:

Toms Cove ESA in Virginia, supervised by the Virginia District Naturalist, Assateague Island National Seashore, P.O. Box 38, Chincoteague, Virginia 23336; (804)336-6577.

North Beach ESA in Maryland, supervised by the Chief of Interpretation, Assateague Island National Seashore, Rt. 2, Box 294, Berlin, Maryland 21811; (301)641-1441.

Our study areas are aimed at local school classes or any youth groups camped on Assateague Island. The primary purpose is to introduce children to the natural history dynamics of a barrier island ecosystem. In addition, the human history of Assateague is portrayed in an attempt to show how man either adapted to, or attempted to alter, the island's natural environment.

Prior to class arrival, a teacher may obtain from the park a carousel tray of color slides and a suggested teacher's narrative written for the 4th-6th grade level. Upon arrival, the teacher can utilize the service of a park naturalist for an hour's look at a portion of the barrier island environment.

(December 1976)

SUGARLOAF REGIONAL TRAILS

Frederick Gutheim, Project Director; Sugarloaf Regional Trails, Box 87, Stronghold, Inc., Dickerson, Maryland 20753; (301)926-4510.

Sugarloaf Regional Trails is a professional planning and environmental education organization with headquarters at Sugar Loaf Mountain on the border of Montgomery and Frederick Counties, Maryland. It is sponsored by the Sugarloaf Citizens Association, Inc., a non-profit entity of about 250 members, representing the residents of upper western Montgomery County, and by Stronghold, Inc., trustees for the 3,000-acre Sugar Loaf Mountain Park on the Montgomery-Frederick County border.

Since its formation in 1974, Sugarloaf Regional Trails (SRT) has specialized in projects involving the extensive use of volunteers for research and planning activities. It produced an Inventory of Historic Sites, historic theme trail guides, proposals for a trail system throughout western Montgomery County, and a guide for citizens groups wanting to conduct similar activities. Fifteen thousand copies of the eight trail guides have been published. It has developed and run conferences and field trips. Funding for this work has come from grants from the National Endowment for the Arts, the Montgomery County Planning Board, and the Maryland Committee for the Humanities and Public Policy. The goal of Sugarloaf Regional Trails' work is to contribute to an appreciation of the region's unique resources through planning, historic interpretation and environmental educational activities.

SRT-HEW Environmental Education Project:

The Sugarloaf Regional Trails Environmental Education Mini-grant from HEW, "Citizens Workshops on the Montgomery County Environment" met a widely perceived need in Montgomery County -- to broaden the base of effective and knowledgeable citizen action on environmental issues. Although there are over 400 citizen associations in Montgomery County, only about one-fifth of them are active, and only a handful deal effectively with County-wide environmental issues. The SRT proposal to HEW developed three objectives to meet this need:

1. To pool the experience and approaches of environmental and civic group leaders in Montgomery County, focusing on land use issues -- their causes, effects, and alternative solutions.

2. To help citizens understand and evaluate alternative approaches to County-wide environmental problems through field workshops and other innovative instruction techniques.

3. To disseminate to other groups and localities the planning and environmental experience gained by the SCA.

Structuring the Project:

In order to gain the interest and cooperation of the most active civic groups, the initial step was to identify knowledgeable County civic leaders and to determine what environmental issues they felt should be addressed in the workshops. About 50 civic leaders were identified and 12 selected to attend an "Advisory Group" planning meeting. The meeting's concensus was: a) that a conference to broaden the perspectives of local civic leaders is needed; b) that nothing like our proposal had been done before in the County; c) that an environmental education conference format would be most successful; d) that SRT should not count on too much sophistication from local civic associations; d) that local citizens associations lack continuity and need tools to train their members; e) that this conference should be the first of a series of annual conferences; f) that an environmental action handbook planned by the project staff would be useful. The basic structure of the project's work, planning and running a conference and field trip and preparing supporting materials, was decided at that meeting.

Next, a three-member volunteer Planning Committee was chosen. It worked closely with the SRT Staff Director in developing the conference's agenda and in selecting speakers. For the first year's conference, it was decided to focus on the Montgomery County General Plan and its relation to past and present environmental planning. The field trip was designed to illustrate visually the concepts and issues discussed at the conference.

Program, Materials and Evaluation:

Invitations were mailed to 408 County civic and environmental groups, asking for one representative who would later report to his group about what he learned at the conference and field trip. Representatives of over 60 groups attended the conference, and 40 attended the field trip. Both were highly successful.

Materials produced by the project included:

1. "Tools for Environmental Action, A Bibliography", compiled in cooperation with the Montgomery County Public Libraries.

2. A booklet of sketch maps on the "County Environment": the Year 2000 Plan for the Nation's Capital; the geology of Montgomery County; the County's water supply system and sewage treatment plant locations; its sludge and solid waste disposal sites; open space "wedges" and sewered areas; major stream basins and sewage basins.

3. A Roster of Resource Persons on County Environmental Problems -- citizens who are experts in the fields of: air pollution; noise pollution; land use planning; parks and open space; solid disposal and treatment systems; water supply; water quality and water pollution; procedural matters; economic aspects of environmental problems; and energy.

4. A Field Trip Packet which will enable the civic group representatives to repeat all or part of the field trip for their local civic associations.

A contractural arrangement with an independent evaluator insured an objective appraisal of the Conference and Field Trip and of SRT's success in meeting its goals. SRT's staff and the evaluator together developed an evaluation questionnaire for conference participants, and the evaluator randomly interviewed some participants, as well.

In evaluating the SRT Environmental Workshop from three perspectives, a) the degree to which the Workshop fulfilled the objectives which its planners set for it; b) the reactions of the participants in the Workshop; c) the degree to which the Workshop succeeded in meeting a real need in the Montgomery County community, the evaluator stated:

> At the outset let it be said that Sugarloaf Regional Trails deserves commendation from all three perspectives. It did a reasonable job in fulfilling the objectives set by the planners; the reactions of the participants were in general highly favorable; and the Workshop was a uniquely successful effort to meet what is a very real and a very widely perceived need in the Montgomery County community. The problems which the Workshop encountered, and there were several, were virtually inevitable in view of the nature of the task and the lack of precedent in this particular kind of enterprise. While there are potential problems for the Workshop if it becomes, as indeed it should, a continuing event, it also holds tremendous promise... SRT should be encouraged to undertake additional field programs, particularly if they can be executed with the virtually flawless logistics and obviously knowledgeable planning which characterized the September 1976 trip....
> "Evaluation of SRT Environmental Workshops, June/September, 1976" - by Lucille Harrigan, pp. 21, 32 of SRT Final Report to HEW.

The Evaluation was incorporated into SRT's Final Report to HEW. The evaluator felt that "one of the directions in which the SRT Workshops might usefully develop is toward becoming a community forum which provides the setting for a meaningful dialog between citizens and government officials and technicians". (Harrigan Evaluation, p. 28, SRT Report to HEW).

The Sugarloaf Regional Trails Final Report to HEW (Mini-grant G00-7500686) September 1976, 50 pp., is available to interested organizations for the cost of Xeroxing and mailing.

Sugarloaf Regional Trails Project Staff: Frederick Gutheim, Project Director; Gail C. Rothrock, Staff Director; Edwin F. Wesely, Consultant; Lucille Harrigan, Evaluator; Sigmund Berkman, Jesse Maury, Herbert O'Connor, Citizen Planning Committee.

Sugarloaf Regional Trails Executive Committee: Frederick Gutheim, Chairman; Donald A. McCormack, Stronghold, Inc.; Rex L. Sturm, Sugarloaf Citizens Association, Inc.

---Gail C. Rothrock
October 1976

RHODE RIVER EDUCATION PROJECT

Sandra K. Fuller, Program Coordinator; Associate Director, YMCA Camp Letts, P.O. Box 208, Edgewater, Maryland 21307; (301)261-4286.

Overall Purposes:

To overcome the effects of cultural and geographical isolation through interracial and intercultural activities in environmental awareness and understanding.

Specific Objectives:

1. To enable participants to experience and recognize natural phenomena that commonly exist in rural, suburban, and urban environments.
2. To assist participants in developing a personal understanding of the interrelationships of the natural world and social institutions.
3. To help participants relate to each other and to teachers and staff in a spirit of cooperation based on a common new experience and situation requiring and examining interdependence.
4. To assist participants in examining their personal and cultural values which govern their relationship to the environment.
5. To provide a positive environmental education experience which students find rewarding and enjoyable.

Target Audience:

High school students (currently serve 10th grade Biology and Earth Science students from District of Columbia Public Schools).

Methodologies:

The program of the Rhode River Education Project is broken into four basic components. Monday is devoted to bringing students into the camp environment and introducing them to the systems of the Camp and the Rhode River. Tuesday is generally devoted to the study of natural systems in the area. On Wednesday, students study human systems, and the interrelationships of human and natural systems. Thursday is used as a time for preparing students for their return to the city, and to encourage them to continue exploring the environment at home and at school.

Students generally work in groups of six to eight people, except in activities designed to provide common experiences to all students. Evening activities, orientations and synthesis involve the total group. The small groups allow students to make new friends, and to take an active role in their education.

On Tuesday and Wednesday, students are broken into four or five workgroups to study a specific aspect of the "natural" environment, and to study man's relation to that area. Resource allocation and management is used as the main theme for the week. This theme is broken into the components of earth, air, energy and water for work groups. Students work together in their groups Tuesday and Wednesday, sharing their experiences with the rest of the group on Wednesday evening in a synthesis session. The synthesis reinforces the idea that each student has only studied one aspect of the environment. Also it provides exposure to experiences of the other groups.

Follow-up is probably the most important part of the Rhode River Project. The basic program can provide some background to the environment for a limited number of students. The follow-up program can provide resources and information for a virtually unlimited number of students to study the environment to whatever depth they can take it, in whatever areas they want to work in.

Materials Produced:

1. The Camp Letts Nature Trail Guide (Booklet)
2. The Systems Concept (mimeo - 2 pp.)

Funding Sources:

1. U.S. Office of Education - Emergency School Aid Act - Basic Non-Profit Grant
2. Eugene and Agnes Meyer Foundation - Construction Grant
3. The Ross Foundation - Program Expansion Grant

Evaluation:

Annual reports to the U.S. Office of Education.

---Sandra K. Fuller
October 1976

ENVIRONMENTAL EDUCATION LAND USE PROJECT

Lowell E. Bender, Director, Continuing Education, Garrett Community College, McHenry, Maryland 21541; (301)387-6666 or (301)245-2181.

Background:

Here in Maryland's westernmost county the forces of exploitation and of environmental conservation are clashing, with conservation having a better-than-average chance of winning.

Our county has only 22,000 people scattered over 662 square miles. Principal employment sources are recreation-related services and construction, governmental infrastructure, agriculture, and some light industry recently attracted by our labor supply and clean water. Unemployment rates are chronically high, leading to a continuing drain of the more ambitious young to the cities.

Several new factors are about to affect our equilibrium. A long-awaited highway will, in 1976, improve access to and from Washington, Baltimore, Pittsburg, and Morgantown. This is expected to improve marketability of the products of our farms and forests, and more importantly, attract more metropolitan area residents to the wholesome recreation to be found in our environment.

Secondly, a massive shift to coal as an energy source has already brought a boom in strip mining. Current state mining regulation is almost as strict as the legislation twice passed by the Congress; it seems probable that, whatever the outcome of continued Federal regulatory effort, local mining will flourish.

Finally, there are visible stirrings of concern on the part of our small Amish communities. For years these hardworking farmers have lived within their own neighborhoods, asking only tolerance from the political community. When the constraints from suburban expansion or whatever became too confining, their custom was to sell out and move on. Now they have found that there are few if any places of further refuge within our county, and several observers have noted the possibility that they may be ready to move toward participation in the larger community as a vehicle for maintaining their way of life.

These factors may resolve themselves in random fashion, or, preferably, under the influence of a conscious process, be directed toward mutually agreed upon goals.

The project would attempt a community education process reaching beyond the county "establishment" into the hills and hollows where people will take action only when they feel their action can make a difference.

The Problem:

Simply stated, the problem is coping with change. Pressures for change, arising chiefly from outside the community, are threatening the community's traditional rural values. Both attitudinally and organizationally, the community is not fully prepared to deal effectively with these pressures. The overall need, then, is to assist the community, through its individual members, to move beyond merely coping with change and toward the effective management of change.

The Goals and Objectives:

Goal 1: Achieve greater breadth and depth of awareness among the general public regarding the current and imminent forces of change affecting the community as they relate to the use of rural land.

A relative minority of the county's adults (the better-educated, more world-wise) already are aware of the change factors and are capable of protecting their own interests; these persons are the ones who would be most likely to participate in such a program (ideally, as discussion group coordinators). The stated goal, however, requires that we encompass more than this community leadership element. We are seeking active involvement by at least three hundred persons; ultimately, their informal communications with friends and neighbors would spread the program's information among most of the rural adult population.

The more specific objectives under this goal include:

a. Collect information about our existing environmental qualities and resources.
b. Identify the options for future use and/or preservation of these resources, including the various short-term and long-range environmental effects and trade-offs (physical, economic and social).
c. Determine individual and community attitudes about these optional uses and consequences.
d. Attempt to achieve consensus about the most desirable of the options (including priorities, as applicable).

Goal 2: Overcome opposition, arising from traditional rural individualism, toward "planning" as a community function by demonstrating the ways through which the planning process can be open for effective, substantive public participation.

Regardless of community sentiment, the County government is legally required to conduct long-range comprehensive planning. The County government also is philosophically committed to opportunities to achieve this. With the County's willing participation, it should be possible not only to show the citizens how to express their individual and group views on environmental and developmental issues, but also to demonstrate that their views will be seriously considered.

Objectives towards this end include:

a. Explaining the legal and administrative aspects of the state and local land use planning processes affecting the County.
b. Identifying existing and potential points in the decision-making process at which public participation (formal/informal, individual/group) would make the most effective contribution.
c. Providing experience (through the neighborhood workshops) in the personal aspects of expressing views and working toward consensus.
d. Achieving governmental action on one or more of the group positions developed under Goal 1.

The Approach:

Using "land use" as its theme, and neighborhood discussion and consensus as the prevailing mode, project elements would be:

1. Selection of fifteen community coordinators. Selection criteria include community acceptance, committment to participatory methods, and flexibility. Amount of formal education and "success" would not be important, per se.
2. Development by these coordinators of a program for achieving project objectives. No doubt this program will require a number of "expert" resource people from time to time--both technical and facilitating.
3. Execution of the program through a series of neighborhood meetings, with experts on-tap. Early feedback will be important. There would be at least two sponsored meetings in each of 15 neighborhoods, with the expectation that this will spark many more informal sessions. A typical sponsored meeting would be preceded by a simple meal--church-supper type--served by a local group. The coordinator would introduce the topic, aided by the resource person, and would stimulate the group to develop its views on land care, and to recommend specific action steps.
4. As neighborhood views begin to coalesce, one or more county-wide meetings will probably be indicated; the product of such a meeting could be a position paper plus an organizing mechanism for public participation in the county planning process.

Benefits:

If successful, this program will produce not only a numerically-significant group of environmentally-informed citizens, but will also equip these citizens with the practical social and political skills to assure that their views can be expressed in a way that will be heard. We envision this as the beginning of an on-going process. We hope that these 300 citizens, together with others who may be attracted by their success, will remain active in keeping themselves informed and in partipating in the decision processes. We also intend to document the results of this program so that its successful techniques may be tried elsewheres (and its pitfalls, if any, avoided).

This project has been funded under a P.L. 93-278 mini-grant.

---Lowell E. Bender
October 1976

OXON HILL FARM

National Capital Park-East, 5210 Indian Head Highway, Oxon Hill,
Maryland 20021; (301)763-1770.

The Oxon Hill Farm is an actual working farm of the 1898-1914 period. The farm demonstrates agricultural practices typical of the Potomac

River Basin at the turn of the century. A number of farm animals live at this site and daily demonstrations of farm chores include cow-milking, egg collecting, and harnessing the horses. Whenever possible, horse-powered equipment is demonstrated.

Seasonal demonstrations may include:

April and May:	Planting of crops and sheep shearing
July:	Cultivation of crops and wheat threshing
August:	Tobacco harvesting and cider pressing
September:	Corn harvesting
October:	Sorghum syrup cooking

The Oxon Hill Farm is a National Environmental Study Area. A walking trail through a natural landscape through the park helps to carry the theme of urban, rural, and natural ecosystems - a comparison and contrast. Tours are presented to school groups upon request. Primary focus is on elementary grades 3-6. Teachers' materials are available upon request through the mail.

---Mary Robinson-Miley
December 1976

CATOCTIN MOUNTAIN PARK

Catoctin Mountain Park, Thurmont, Maryland 21788.

National Environmental Education Development Camps:

The focus of environmental education in Catoctin Mountain Park has been the residential organized group camps which have been used by the local school districts for their residential environmental education camps at the sixth grade level. Two of these programs have been ongoing for almost twenty years. The school districts provide their own teaching staffs but utilize the park's resources in their outdoor studies. Park personnel present a general orientation to the area to each group each week and act as resource advisors.

The school districts pay a fee for the use of the camps as well as utilities and provide their own food service. Two of the camps are not winterized and are available spring and fall while the third camp is winterized and currently used year-round by the District of Columbia Public Schools. The capacity of the three camps is in excess of 400.

The objectives of the program are not only to teach interrelationships within the natural world but to teach social relationships and group living.

Environmental Study Area:

The park also contains the Brown's Farm Environmental Study which has a self-guiding trail with printed guide. The trail leads from a natural area, where the importance of the four strands of the web of life are explained, into an old farm area where the elements of change, adaptation, and succession are discussed. The area is available to all grade levels on a day-use basis. The printed guide is aimed at the fifth to sixth grade level and also is available to the general public as a nature trail type of guide. The ESA is adjacent to a picnic area, where water and sanitary facilities are available. The picnic area also lends itself to study as a subject of a recreational land use and its impact on the environment.

(December 1976)

HATHEWAY ENVIRONMENTAL EDUCATION INSTITUTE

Charles E. Roth, Director of Education, Hatheway Environmental Education Institute, Massachusetts Audubon Society, Lincoln, Massachusetts 01773; (617)259-9500.

Purpose:

To improve environmental education within the Commonwealth of Massachusetts for all age levels.

Specific Objectives:

1. Upgrade the environmental knowledge and skills of in-service teachers.
2. Provide out-of-school environmental education activities for school-age youngsters.
3. Provide continuing education opportunities in environmental awareness and understanding for adults.
4. Assist state and federal agencies in institutionalizing environmental education in the formal schooling structures.
5. Provide direct educational experiences in the environment for both adults and youth.

Target Audiences:

In-service teachers and youth leaders; general adults with emphasis on "leaders and decision-makers"; children.

Methodologies:

Our emphasis is in staff development and in-service training through workshops, consulting, materials development and a comprehensive resource center. Each approach is tailored to the specific situation.

Materials Produced:

The small brochure "Zero-In on Environmental Education", available on request, lists some of the materials available from us; however, much of our time is devoted to putting the materials already developed by others actually into use.

Funding Sources:

We have some private foundation money to cover our down time but our basic approach is to be essentially self-supporting through realistic fees for services rendered.

Plans for the Future:

Current and future efforts are focused on more long term (3-5 years) staff development with schools to achieve environmental education fully integrated into the system with a critical mass of teachers who can keep the efforts functioning and growing over many years. Also we are looking to expanded growth of our environmental education teacher center run by and for classroom teachers. A third major project is final development and implementation of an out-of-school youth club program we are calling "Spaceship Earth Clubs".

---Charles E. Roth
November 1976

1975 DIRECTORY REFERENCE: p. 209

ERIC DOCUMENTS:

1. Aids to Environmental Education: Pre-school-Grade 3; Grades 4-6; Update 1 (June 1974). ED 093 763
2. Aids to Environmental Education: Grades 7-9, 10-14; Update 1 (June 1974). ED 093 764
3. Aids to Environmental Education: The Energy Crisis - Aids to Study. ED 093 765
4. Habitat Project. De-Icing Salts and the Environment. ED 098 079

MILL CREEK BASIN STUDY

Dr. William D. Yerkes, Research Director; Phillip C. Nunn, Research Coordinator; Grand Valley State Colleges, Urban and Environmental Studies Institute, Allendale, Michigan 49401; (616)895-6611.

In mid-1974 Michigan State University initiated the Mill Creek project as a portion of the International Joint Commission study of the Great Lakes pollution as related to surrounding land uses. In the spring of 1975, Grand Valley State Colleges was invited to join the Mill Creek Basin study to locally perform the field work. Funding has been provided by the U. S. Environmental Protection Agency, via Michigan State University. From April, 1975 through June, 1976 Grand Valley students and faculty accomplished the following:

> Planned and organized field studies, established Basin monitoring stations, obtained landowners' permission for access to station sites, collected samples, took measurements, serviced field instruments, performed laboratory analyses, provided data to Michigan State University and developed a local computerized data bank.

Grand Valley's approach to the project was principally to meaningfully involve undergraduate faculty and students in an on-going large-scale environmental research project. During the year of involvement, this objective and the requirement for dependable quality performance were well-served. Grand Valley started with three faculty advisers and ten students on the project monitoring eight stations. At the peak of activity in the basin, the work force had expanded to three field crews working 40 active stations and a fully operating water laboratory. In addition to the students who gained field experience by working on the project, approximately 100 undergraduate students were exposed to environmental field work through classes which used the Basin and the Project as an educational resource.

Grand Valley's activities in support of Michigan State's project terminated in June, 1976 due to insufficient funds for continuation. Involvement in the Mill Creek Study has opened new dimensions for environmental science education and efforts are being made to continue using the Mill Creek Basin as an education and research resource.

The one year of activity by Grand Valley in the Mill Creek Basin is represented by:

1. 66 stations established and used for data collection;
2. More than 100 undergraduate Environmental Science students provided an exposure to field research which they otherwise would not had;
3. Establishment of a computerized data bank to organize more than 10,000 separate data items for systematic retrieval;

4. Initiation of analysis of Mill Creek Basin data by students, a scientific activity not usually performed by undergraduate students.

The 66 monitoring stations in the Mill Creek Basin were each established to measure a specific set of parameters; therefore, they were categorized as:

17	Biological Testing Stations
2	Recording Stream Gage Stations (MSU)
24	Water Quality Stations
4	Recording Weather Stations
14	Stream Staff Gage Stations
5	Non-recording Weather Stations

A copy of the Mill Creek Basin Project Final Report is available for $5.00 from the director of the Urban and Environmental Studies Institute.

---Philip C. Nunn
October 1976

ENVIRONMENTAL EDUCATION ACTIVITIES

Dr. John C. Rosemergy, Science Coordinator, Ann Arbor Public Schools, 601 W. Stadium Blvd., Ann Arbor, Michigan 48103.

There have been no changes in our program. The information printed in the previous Directory still pertains.

---John C. Rosemergy
October 1976

1975 DIRECTORY REFERENCE: pp. 209-210.

KALAMAZOO NATURE CENTER

Kalamazoo Nature Center, 7000 N. Westnedge Avenue, Kalamazoo, Michigan 49007.

Listed below are filmstrips with scripts and/or cassettes by and available for purchase from us this calendar year:

The City as an Ecosystem, five strips---

Beginning Glossary of Ecology, 69 frames;
Environment?, 80 frames;
Ecology and Environmental Concern, 51 frames;
A Deciduous Woods Community, 30 frames.

Inquires should be addressed as above, marked "Attn:Strips."

---Diane D. Worden
October 1976

1975 DIRECTORY REFERENCE: pp. 210-211.

ERIC DOCUMENTS:

1. Curriculum Resources for Environmental Progress. Vol. I: Curriculum Outline and Activities Guide. ED 127 111
2. Curriculum Resources for Environmental Progress. Vol. II: Curriculum Resources Inventory: Resource Materials Guide to Kalamazoo Area Information Facilities. ED 127 112

DISCOVERY THROUGH OUTDOOR EDUCATION

Kristy Kaherl, Project Coordinator; Macomb Intermediate School District, 44001 Garfield Road, Mount Clemens, Michigan 48043; (313)286-8800.

In the fall of 1971 the "Discovery Through Outdoor Education" project was begun to serve all special education students (preschool through high school who are qualified for special education). These disabilities include: 1) Blind and Visually Impaired; 2) Deaf and Hearing Impaired; 3) Educable Mentally Impaired; 4) Trainable Mentally Impaired; 5) Day Care; 6) Orthopedic; 7) Emotionally Disturbed; and 8) Learning Disabled.

The major purpose of the project is to establish an experimental model program which would: 1) improve youngsters' achievement in regular school subjects, their self-concepts, interpersonal relationships, and leisure skills; 2) train special education teachers in the utilization of the outdoors for providing learning opportunities to handicapped children; 3) test an outdoor education model for improving the learning and lives of handicapped youngsters; 4) educate and involve parents in the program; 5) utilize high school students as teacher aides for handicapped students.

The general procedure for the attainment of these goals is: 1) involving parents, special education teachers, handicapped youngsters and high school students in project planning, implementation and evaluation;

2) providing outdoor education workshops for teachers, parents and student aides; 3) implementing articulation between learning experiences provided in the outdoors and those provided in the indoor special education classrooms; 4) providing opportunities for handicapped students to have learning experiences in outdoor settings, including resident outdoor school experiences where students and educators will learn and live together 24 hours a day; 5) utilization of various community resources, clubs and organizations which have the potential to contribute to the education of handicapped youngsters.

The project has been validated by the State of Michigan and awarded funds through Title III and Title IV-C for six years, terminating in June 1977.

The "Discovery Through Outdoor Education" project has developed the Discovery™ manual and Discovery ™ sound filmstrip. Available as a set for $35.00, it can best be utilized by teachers and administrators in providing information and a model for adoption of the project concept.

The Discovery™ manual is a 472-page book which describes in detail the procedures to follow when planning an outdoor laboratory experience for special education students.

The Discovery™ sound filmstrip contains four filmstrips and cassettes covering: 1) an overview of outdoor education; 2) the history and philosophy of our program; 3) curriculum concepts; and 4) disability considerations.

---Kristy Kaherl
November 1976

1975 DIRECTORY REFERENCE: pp. 211-213

ERIC DOCUMENTS:

1. Discovery Through Outdoor Education. ESEA Title III Evaluation Report, School Year 1973-1974. ED 097 168
2. Discovery: Guidelines for Establishing an Outdoor Education Program in Special Education. ESEA Title III Report. ED 118 339
3. An Educational Alternative for Special Education. ED 121 951

MINIGRANT

David L. Peterson, Director, Department of Water and Gas, City of Duluth, 414 West First Street, Duluth, Minnesota 55802; (218)727-4522.

Duluth was unable to implement the program for which the environmental education grant was awarded, according to correspondence received from Mr. Peterson. A P.L. 91-516 minigrant for $10,000, for a workshop focusing on the question of potential environmental impact of industrial waste disposal into community water source, had been awarded in 1974.

(October 1976)

ENVIRONMENTAL LEARNING CENTER

John L. Pichotta, Director; Environmental Learning Center, Isabella, Minnesota 55607; (218)293-4345.

The overall purposes and objectives of the Environmental Learning Center, Inc. are to provide a place where any group can conduct its own environmental education program. We provide a place, equipment and staff support for groups that are conducting programs. We also conduct approximately 80 workshops and seminars each year to help adults become more aware of their environment.

During the week the primary users of the Center are organized school groups. These follow programs that are designed by their teachers, and use ELC equipment and staff. On the weekends we conduct programs for adults. These are conducted by consultants hired by the Center. Programs for both students and adults are centered around outdoor activities.

There is also an interim program for college students on a 4-1-4 plan in January. This deals with winter camping skills, cross-country skiing and other outdoor winter activities.

We have produced a Planner, Activity Book and Intern Handbook.

When the ELC opened, it was under the auspices of Cook County Schools. There was a Title III grant which funded the majority of the first three years of operation. When the grant expired the Center came under the auspices of Lake County Schools. The first year with Lake county schools there was no grant money from any source. Last year there was a $50,000 state grant, and this year there is again no grant money involved with the ELC operation. The annual budget is just over $300,000, all of which comes from user fees. A school group pays $29.60 for a five-day stay at the Center during the regular school year. Adult programs on weekends cost $38.50. We average about 180 students per day for 28 weeks and 100 adults for the same number of weekends, plus many summer programs.

We also have an intern program. Each academic term we have eight college students who are working as teacher aides/teachers here at the ELC. The interns must arrange for credit with the college. They also work with the weekend seminars. Interns receive room and board while here, but no pay.

At the end of the third year an outside evaluation was completed. It indicated that the Center's programs were having a very positive effect on students.

Plans for the future include continued operation with more weekend programs.

The ELC staff is: Director, John L. Pichotta; Intern Coordinator, Dr. John Y. Jackson; Naturalist, Mark Rosen; Weekend Program Coordinator, Sandra Jensen.

---John Y. Jackson
October 1976

1973 DIRECTORY REFERENCE: pp. 324-325

1975 DIRECTORY REFERENCE: pp. 59-62

ERIC DOCUMENT:

Activities, A Collection of Things to Do at the Environmental Learning Center, Isabella, Minnesota. ED 113 154

HENNEPIN COUNTY PARK RESERVE DISTRICT

Jack Mauritz, Director of Interpretive Services, Box 32, Maple Plain,
Minnesota 55359; (612)473-4693.

The Hennepin County Park Reserve District, through its nature centers and related park interpretation programs, has provided aid to environmental education in the schools of Hennepin County and surrounding area since 1968. Programs of interpretation are offered in one of two frames of reference. "Educational" programs are available to classes of children, with their teachers, in nature center program areas or elsewhere in the park reserves. Programs in this category are developed jointly between a professional naturalist and the classes' teacher. They are intended to function as extensions of classroom activities, are inquiry-oriented in nature, and, as appropriate, can be directed to any curriculum program as adopted by the school (OBIS, "strands," etc.). Materials are produced in connection with this program as seem appropriate to orient the teachers and students to the possibilities of the nature centers and also to provide working materials for student experiences at the nature center. Funding for this program is based upon a tax levy in Hennepin County, Minnesota. Future plans definitely include continuation of this program; a limited amount of expansion is foreseen.

The remaining effort made in the District's interpretive program is to a "general public" audience. Programs tend to be rather more recreational than educational in their approach. However, they are often used with significance in adult education, continuing education, and personal investigation programs as well as fulfilling their recreation enjoyment function. Programs are offered in a diversity of topics, not confined to natural history interpretation but including arts, crafts, cultural history, and recreation. For this program, nature centers are open daily and year-round.

Primary contact with the Park Reserve District programs is through the Director of Interpretive Services, Jack Mauritz. The three operational units include: (1) Lowry Nature Center, Rt. 1, Box 690, Excelsior, MN 55331; (612)472-4911, (2) Hyland Lake Nature Center, 8738 E. Bush Lake Road, Bloomington, MN 55438; (612)941-7993, (3) Eastman Nature Center, Rt. 3, Osseo, MN 55369; (612)425-2324.

The primary objective of the Hennepin County Park Reserve District's interpretive program is to further the open space recreation mission of the District by increasing awareness in users, reducing incompatible and inappropriate usage, and increasing the skill level and enjoyment of park reserve visitors.

Materials of use in environmental study programs have been generated in all three nature centers. People seeking brochures in a general natural history-environmental study program are encouraged to contact the individual nature centers requesting teacher-orientation packets. Single copies of these packets will be sent to an institutional address at no charge. Private addresses and multiple copy requests will be billed.

---Jack Mauritz
October 1976

1973 DIRECTORY REFERENCE: pp. 328-329

1975 DIRECTORY REFERENCE: p. 61

ENVIRONMENTAL CONSERVATION LIBRARY OF MINNESOTA (ECOL)

Julia W. Copeland, Environmental Conservation Librarian; Jo Ann Musumec, Environmental Education Specialist; ECOL, Minneapolis Public Library and Information Center, 300 Nicollet Mall, Minneapolis, Minnesota 55401; (612)373-6637.

The Environmental Conservation Library serves as an environmental information center for Minnesota. A collection of books, pamphlets, government reports, periodicals and other materials is used to provide answers and background information on environmental issues. Materials are loaned throughout the state. Both environmental professionals and the general public are served.

Direct environmental education assistance is provided in three ways:

1. The entire collection provides background information, readings and facts to support EE programs.
2. A separately-shelved collection of EE curricula is available for browsing, and the curricula may be borrowed by Minnesota teachers.
3. Environmental Information Packets are loaned to teachers, students and others on request. Each packet contains 25 to 30 pamphlets, reprints, brochures, etc. on an environmental topic, obtained from a variety of sources. This project was developed with the aid of a U.S.O.E. grant under PL 91-516, and was described in the 1973 edition of the ERIC Directory of Projects and Programs in Environmental Education for Elementary and Secondary Schools.

The library does not produce publications except for a newsletter, but a final report of the packet project is available.

---Julia W. Copeland
October 1976

1973 DIRECTORY REFERENCE: pp. 332-333

MINNESOTA ACADEMY OF SCIENCE

M. I. Harrigan, Executive Director, Minnesota Academy of Science, 3100 38th Avenue South, Minneapolis, Minnesota 55406; (612)721-3391.

We have not carried out any new environmental education project that was not previously covered.

---M. I. Harrigan
September 1976

1973 DIRECTORY REFERENCE: pp. 330-331.

1975 DIRECTORY REFERENCE: p. 62.

ERIC DOCUMENT:

Future Environment of Minnesota: The Educational Task. ED 116 900.

NATCHEZ TRACE NEED CENTER

David F. Baker, Environmental Specialist, Natchez Trace NEED Center, Natchez Trace Parkway, Rural Route 1, NT-143, Tupelo, Mississippi 38801; (601)842-0295.

The Natchez Trace NEED program provides an environmental study area, a resource center and environmental training to educators in a six-county area in Northeast Mississippi (Lee, Itawamba, Monroe, Chickasaw, Pontotoc, and Union). The NEED program serves as a model to encourage the development of environmental study programs in local school systems. Teachers in the 5th and 6th grades are encouraged to involve their students in an overnight environmental camp, and teachers in other grades practice environmental teaching skills on environmental day trips.

Learning activities involve outdoor awareness exercises and interdisciplinary environmental lessons. An environmental specialist is available to provide teacher training, to help plan ecology trips and to assist teachers with learning activities. High school students, members of STEP (Students Toward Environmental Participation), are trained by the environmental specialist to serve as teacher aides.

Two publications explain the NEED program. One is a 42-page Environmental Awareness Reference Guide, and the other booklet deals exclusively with the overnight program. Five activity sheets have been printed that are site-related lesson plans. The basic facilities and services of the NEED program are explained in a 20-minute slide program.

More than 2,000 students utilize the NEED environmental study area each year, and future plans are to arrange for operation of the center by a college or university group for improvement and expansion of the program by means of a cooperative agreement between the Natchez Trace Parkway and selected institution.

---David F. Baker
December 1976

1973 DIRECTORY REFERENCE: pp. 362-363

GEORGE WASHINGTON CARVER NATIONAL MONUMENT

George Washington Carver National Monument National Environmental Study
Area, P.O. Box 38, Diamond, Missouri 64840.

The George Washington Carver National Monument NESA encompasses 15 acres of creek bottom land with a historic building, wood lots and prairie. NESA users traverse this area by use of a one-mile trail.

Purpose:

To provide to teachers ESA Workshops an area where students may explore the relationship of man to his environment and historical past.

Target Audiences:

Inner-city public school students and public school students from the surrounding school systems. However, all private groups can use the ESA.

Methodologies:

School systems provide the learning experience. Park personnel are not involved in these cases. For private organizations or other agencies, Park personnel act as facilitators in presenting the strands concepts and environmental games.

No materials are produced.

We do provide transportation funding for Pittsburg and Ft. Scott, Kansas, school districts. This allows students to use the ESA who otherwise would not have the opportunity, due to budget constraints within these school systems.

Future Plans:

The non-specific format will remain the same. We are continually trying to induce other school systems to use the ESA, sometimes with success.

(December 1976)

ROCKWOODS RESERVATION

Randall O. Herberg, Forester/Area Manager, Rockwoods Reservation,
Missouri Department of Conservation, Glencoe, Missouri 63038;
(314)273-5436.

At the present time, we are in the process of remodeling our facility at Rockwoods Reservation. Purpose, objectives, target audiences, etc., are being updated, with a look at what we are doing and what we should be doing.

---Randall O. Herberg
October 1976

1973 DIRECTORY REFERENCE: pp. 364-365

1975 DIRECTORY REFERENCE: p. 66

ENVIRONMENTAL EDUCATION TRAINING PROJECT

Project Managers: Peggy Rustige, St. Louis Public Schools, 5101 McRee Avenue, St. Louis, Missouri 63110; Calla Smorodin, Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Missouri 63110. Project Directors: Edward P. Ortleb, Science Supervisor, St. Louis Public Schools; William M. Klein, Assistant Director, Missouri Botanical Garden.

The U.S. Office of Environmental Education has awarded a grant for $57,876 to the St. Louis Public Schools and the Missouri Botanical (Shaw's) Garden to develop a model for training teachers of grades 4, 5, and 6 in a multi-disciplinary, multi-process approach to environmental education. The project is designed to respond to concerns of local and national educators that environmental education programs today present a fragmented approach toward such issues as air and water pollution, urban land use, energy, and wildland conservation. Problems are examined and solutions proposed by specialists in a multitude of agencies, representing the gamut of scientific, social, and aesthetic disciplines. Often these specialists work in isolation from one another with little coordination or concentration of effort toward a problem. Unfortunately, environmental education frequently mirrors this view of the environment as a patchwork of unrelated problems and solutions.

The position of the Environmental Education Training Project is that the environment must be perceived in a much broader view -- one that stresses the interrelationships among all parts of the environment. It is within this framework of understanding that people must make decisions about the allocation of the earth's resources and the quality of life that they are willing to accept.

Environmental education, to be successful and useful for today's children, must present this more comprehensive and unified picture. Central to the implementation of this objective are new concepts and schemes for institutional cooperation and involvement in school programs. It is important, therefore, that teachers be trained in the multi-disciplinary and multi-process requisites of environmental education and that available community resources be used effectively and creatively in providing meaningful experiences for children.

The need for teacher training has become more critical in recent years as the school's role in socializing young people has expanded. The need to cope with change, to be aware of conflicting societal pressures and demands regarding the utilization of resources, and to relate to the natural and man-made environment requires that young people learn analysis and decision-making skills early in life. Childhood is a critical time in the development of citizenship responsibility, as shown by Hess and Torney (The Development of Basic Attitudes and Values Toward Government and Citizenship During the Elementary School Year. Chicago: The University of Chicago, 1965). The importance of these formative years places particular burden on the schools which have the formal charge of developing the intellectual faculties of children so that they may become responsible adults. In these formative years, the schools must be concerned with teaching children about a citizen's responsibility to the environment. In addition, teachers must learn to view the community as an educational laboratory for the utilization of the school's intellectual, physical, and natural resources.

The goal of the Environmental Education Training Project is to develop a teacher training model that will take an important step in meeting these objectives. The project involves the participation of 20 city teachers who have received summer workshop training in environmental education concepts and curriculum development. During the 1976-77 school year, project teachers will create mini-units in environmental education, and in addition will provide workshops and other training assistance for teachers throughout the city system.

An important feature of the training program is the organization of an ad hoc consortium, a diverse array of institutions in the St. Louis area which have resources to offer educators in environmental education. The consortium includes over 25 cultural, civic, educational, and environmental institutions and organizations. The purpose of the consortium is to develop the portion of the training model that relates to the utilization of community resources. Specifically, consortium members will assist project staff in developing a process for classroom teachers to utilize community resources in providing experiences for children which will build their understanding of the environment.

After the training model has been developed, tested, evaluated, and refined, the project staff will compile an Environmental Education Training Guide which can be used by school systems, state departments of education, and institutions of higher education throughout the country. It will offer a training program in environmental education that is multidisciplinary, multi-process, and designed to help students move toward a comprehensive understanding of the environment.

---Peggy Rustige
Calla Smorodin
September 1976

BILLINGS COOPERATIVE ENVIRONMENTAL EDUCATION PROGRAM

Ed Heiser, Environmental Education Coordinator, Billings Public Schools, 101 10th Street West, Billings, Montana 59102.

Environmental Education in Billings, Montana, in its tenth year, exists as a cooperative program, including the local school district, Eastern Montana College, and a conglomerate of federal and state agencies. The program originated in 1967 with thirty sixth graders and now includes in excess of 8,000 elementary students (K-6).

The cooperative Environmental Education program includes in-classroom, school ground, and field activities involving not only the cognitive area, but emphasizing the affective. It is the objective of the school district to produce a student who is sensitive, knowledgeable, motivated, and equipped with problem-solving skills dealing with his environment. A strong aspect of the program is the active involvement of local higher education. Eastern Montana College offers courses designed to train education majors to serve as resource persons in the local elementary schools. They assist in all areas of the school's Environmental Education program, including field studies. The involved federal and state agencies view Environmental Education as a viable management tool, ultimately producing a citizenry that is environmentally aware and cognizant of natural resources and management problems. Equipped with such knowledge, a student enters adulthood motivated to participate in the planning and decision-making processes of resource-managing agencies.

Representatives from U.S. Forest Service, Bureau of Land Management, Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Park Service, Montana State Fish and Game, Eastern Montana College, Montana State Department of Public Instruction, and Billings Public Schools are working cooperatively in the various aspects of the local Environmental Education program. Teacher training workshops, offered for credit through Eastern Montana College, are facilitated and sponsored by this group. Workshop content parallels student curriculum, with participants actively involved in interdisciplinary, "hands-on" learning activities. A significant agency contribution has been the development of an Environmental Education Study Area on public lands near Billings by the Bureau of Land Management. This 1400-acre site is entitled "Ah-Nei", a Crow Indian word pertaining to early man's heritage in the area. The site is available year-round for utilization by the students of Billings and the surrounding area.

A continuing function of the school district is the up-dating and development of Environmental Education curriculum. College and agency representatives participate on an advisory basis. Agency Information and Education Specialists offer expertise in learning activity development.

In 1972 the Billings Environmental Education Program received national recognition. The program was selected as one of the top ten programs in the nation by the American Association of Colleges for Teacher Education. The cooperative total community effort was an important criteria for selection.

Currently, a state-wide steering committee of Environmental Educators has given birth to an organization known as the Montana Environmental Education Service Association. MEESA's objectives include cooperation between all factions interested in Environmental Education in Montana for the obvious common goal.

For further information contact: Mr. Ed Heiser, E.E. Coordinator, Billings Public Schools, 101 10th Street West, Billings, Montana 59102.

Copy of EESA Study Guide available through: Ginny Lewis, E.E. Specialist, Bureau of Land Management, District Office Box 2020, Billings, Montana 59101.

(October 1976)

1973 DIRECTORY REFERENCE: pp. 371-373

1975 DIRECTORY REFERENCE: pp. 67-68

COMMUNICATIONS WORKSHOP

William L. Bryan Jr., Coordinator (on leave); Laurie Abbott Lamson, Acting Coordinator; Joseph Lamson, Project Director; The Northern Rockies Action Group Inc., Number Nine Placer Street, Helena, Montana 59601; (406)442-6615.

The Northern Rockies Action Group received a mini-grant from the Office of Environmental Education to host a workshop on communications theory and techniques for public interest citizen groups in Montana, Idaho and Wyoming. The goal of the workshop was to train citizen groups in those communications techniques they need to educate the public about the impact of siting energy conversion facilities. Our intent was that increased use of communications techniques by citizen groups would result in a more knowledgeable public. This educated public would then be in a better position to be able to participate meaningfully in public policy decisions.

The workshop was attended by about 40 members of public interest citizen organizations from the Northern Rockies and Southwest regions of the United States. This wide attendance facilitated discussion of the energy development picture, as well as citizen participation in energy development policies.

Resource people for the workshop included experts in communications theory and research, media access, and preparation of public service announcements. In addition, an investigative reporter from the Los Angeles Times attended and discussed questions of newspaper coverage of the issues.

A workbook covering major areas of discussion during the workshop will be produced this year. Copies will be available by approximately December, 1976.

An independent evaluation of the workshop is being written, and will be available in approximately November, 1976.

This workshop is part of NRAG's overall objectives to make professional skills a part of public interest citizen organizations. NRAG feels the use of the skills will ultimately result in a more informed and participative public. NRAG plans to continue to offer training to citizen groups in professional skills through workshops, publications, and on-site consultation.

--- Laurie Abbott Lamson
October 1976

ENVIRONMENTAL INFORMATION CENTER

John Westenberg,EIC Grant Administrator; Environmental Information Center, P.O. Box 12, Helena, Montana 59601; (406)443-2520.

The Environmental Information Center coordinates Montana's environmental lobby and serves as a liaison between citizens and state agencies. Education is also one of the Center's chief interests.

In 1975, the Environmental Information Center (EIC) completed an exhaustive study on the growth of subdivision in Montana and published this study under the title "Montana Subdivision Inventory". A bimonthly newsletter "Down to Earth" provides information about Montana's important natural resource issues. EIC also produces a review of each legislator's voting record on environmentally related legislation and a review of the State Legislative efforts.

This year EIC received a $10,000 mini-grant from HEW's Office of Environmental Education. The grant was entitled "Developing a Working Model for Dealing with the Issue of Growth at the County Level in Montana". To implement this grant EIC is holding "Growth Workshops" in two Montana counties, Lincoln and Lewis and Clark. Lincoln county is the site of a proposed copper-silver mine and a hydro-electric project. Lewis and Clark county is witnessing a recreational boom in traditionally agricultural areas. These workshops have afforded a wide variety of interests--ranchers, loggers, businessmen, environmentalists, government officials and so forth--the opportunity to sit down and discuss the impacts of growth, and what citizen efforts can do to shape that growth.

The workshops have made experts in land use planning, the economic and social impacts of growth, County Commissioners, and State Legislators available to concerned local citizens and made those citizens aware of what can be done to mitigate the adverse impacts of growth. The workshops also afforded the opportunity to establish a consensus about what kind of growth was favored by local citizens.

In Lincoln county, for example, a citizens group was formed to offer input to the Environmental Review of the proposed copper-silver mine. (Such input is particularly important in view of a recent Montana Supreme Court ruling which allows a State agency to accept, deny, or modify a project based on the findings of its environmental review.) In Lewis and Clark county, ranchers have begun organizing for an Agricultural Zoning District.

---John Westenberg
October 1976

GLACIER NATIONAL PARK NESA'S

David V. Petticord, Environmental Education Coordinator, Glacier National Park, West Glacier, Montana 59936.

The purpose of the NESA program at Glacier National Park is consistent with the overall purposes of the NESA program as administered by the National Park Service on a national basis. Two main thrusts of the program at Glacier are:

1. Provide on-site NESA facilities and services to schools in order that the park be readily available as an environmental education teaching resource.

2. Provide NESA extension services to local schools in the form of environmental education curriculum consulting, and consultation to schools developing environmental study areas on school lands, or in city and county parks.

There are four NESA sites in Glacier National Park, each representative of the various aspects of the park's geological, ecological, and historical environments. Located on the west side of the park are Apgar and Avalanche Lake NESA sites, and Red Eagle and Two Medicine NESA sites on the east side. Descriptive materials including teacher field guides and a teacher classroom guide explain the resources of the areas and suggestions for their use in environmental education.

Educational objectives of the park program are consistent with the overall objectives of the NESA program, and are:

1. To introduce the student to his total environment, cultural and natural, past and present.

2. To help the student understand the effect of man's use of the resources of his environment.

3. To prepare the student for environmental problem-solving and decision making a responsible citizen..

Glacier's NESA program began in 1968, and interest of local educators for use of the program remains high and serves about 3,000 students annually. The program emphasized that the NESA areas are outdoor laboratories to be used in support of on-going classroom environmental education. Teacher personnel of local schools using the program are encouraged to be self-reliant in conducting on-site instruction, as opposed to reliance on National Park Service resource personnel to conduct instruction. To date, approximately 100 teachers have taken part in NESA orientations conducted by park personnel.

With the on-site phase of the program now well established, more attention is being given to providing extension services. The ultimate objective of this is to assist interested educators in firmly establishing environmental education in school curriculums, and development of a network of environmental study areas in counties adjacent to the park within convenient distance to schools, thereby encouraging more frequent out-of-classroom environmental education experiences for students.

---David V. Petticord
December 1976

LAKE MEAD NATIONAL RECREATION AREA

Jerry D. Wagers, Superintendent, Lake Mead National Recreation Area,
601 Nevada Highway, Boulder City, Nevada 89005.

The purpose of our Environmental Education Program is to make people more aware of the effects of their actions upon the world around them.

Students and teachers are contacted two ways. The off-site activities at schools involve presentation of environmental programs with an interaction between the class and the interpreter. During the past year the emphasis has been on a Bicentennial theme, presenting relationships between man, animal, and plants in this harsh desert environment.

We receive more of a response to our off-site educational endeavors than we do to participation in the Environmental Study Area. A major problem the schools encounter is scheduling and financing of bus transportation to the area from Las Vegas, a distance of 30 miles.

Our objectives in the use of the NESA are to provide a living demonstration of the desert environment and to stimulate the minds of people to an awareness of their effects upon this environment.

The NESA trail at Lake Mead is located in close proximity to the Visitor Center and is an extension of the desert botanical garden trail. With these three interpretive devices being located together we find many of the visiting public extending their walk of the botanical garden to include the NESA trail.

The total distance of the two trails is about one-fourth mile covering a variety of desert communities. The botanical garden has a series of interpretive signs that are of aid to teachers and their classes. The visitor center contains exhibits, reference collections and an auditorium. The ready availability of a park interpreter enables us to provide special programs to visiting schools.

In the past, workshops have been held for teachers who would be using the NESA. These workshops have been effective to the program. In the future we plan to conduct additional workshops. The teachers workbook is dated and needs revising. In the near future it is planned to rewrite the manual and to develop self-guiding cassette tapes for use by the teacher and her students. These tapes would cover a variety of topics relating to the NESA.

---Jerry D. Wagers
December 1976

RESOURCE MATERIALS DEVELOPMENT FOR COMMUNITY EDUCATION: TV SERVICES AND INSTRUCTIONAL MATERIALS ON LAND USE ISSUES

William A. Brady, Project Director; New Hampshire Network, Box Z, Durham, New Hampshire 03824; (603)862-1952/3.

Purpose:

1. To provide New Hampshire citizens with information on the nature and extent of present loosely-regulated land use decisions and on the conquences of such haphazard decision-making patterns.
2. To show that individuals have a responsibility to become involved in land use planning.
3. To provide information on specific land use planning procedures and activities which would enable interested citizens to improve their ability to participate in the planning process in their own communities.

Target Audience:

The general population of New Hampshire, or at least that portion of the population that watches (or can be induced to watch) the New Hampshire Network.

Project Activities:

1. The Network will produce three 30-minute color films on land use planning.
2. The Network will organize local discussion groups to view and discuss these programs.
3. The Network will develop and distribute discussion guide materials to these local groups.
4. The three films will be broadcast by the Network, probably in late April or early May of 1977. It will also be broadcast as part of the Network's school television service in the fall of 1977. In addition, the programs will also be available in other formats, such as 16mm film and helical scan tape for distribution throughout the state.

Materials:

1. Three 30-minute color 16mm films, to be transferred to two inch quad videotape for broadcast and to helical scan tape for AV distribution.
2. A "discussion kit" will be developed, combining available print materials with Network-developed information. These will be distributed, free of charge, to the members of local discussion groups.

Funding Source:

U.S. Office of Education: Environmental Education.

Project Evaluation:

1. Questionnaires to be completed by discussion group members at the end of the three-part series in April/May.
2. Questionnaires to be completed by home viewers (i.e., those not members of a local discussion group) after viewing three-part series.
3. Questionnaires to be completed by teachers and students after broadcast during school hours in the fall.
4. Pre- and post-test on program content to be administered to a small group of discussion group members.

Program Content:

Film #1: The nature of the land use problem in New Hampshire. Viewers will be made aware of the limited quantity of our land resources and the various pressures on these resources. The film will make the contrast between the situation in southern New Hampshire (rapid growth and development, haphazard land use patterns, etc.) and the apparent lack of development (creating an entirely different set of problems) in northern New Hampshire.

Film #2: Some examples of "success stories", communities that have taken a variety of positive steps to solve their land use planning problems. The film will show how communities have cooperated with local, regional, state and federal agencies to develop workable plans for realistic and prudent use of the land. The film will not deal with organizational charts or detailed studies of the inner workings of governmental agencies; this kind of information will be left to the print materials that will supplement the films.

Film #3: A highly personal, subjective, and impressionistic look at the human factor in the land use dilemma, this film will present a cross-section of public opinion on how land use planning affects individual lives. It should involve a broad range of New Hampshire people: the worker in the paper company, the logger, the regional planner, the developer, the farmer who dislikes any kind of government interference, the environmentalist, the person who lives in a trailer because he can't afford a home of his own, the school board member, etc. The purpose of this film would be to show that a) land use planning affects everyone and therefore everyone should be concerned, b) everyone can (and should) become involved in the planning process.

---William A. Brady
October 1976

SEA: STUDENT ENVIRONMENTAL AWARENESS

Dr. Richard O. Peters, Director; Experimental Schools Program, NH School Supervisory Union 58, Groveton, New Hampshire 03582; (603)636-2341.

Man interacts with both natural and social environmental phenomena on a day-to-day basis. Interaction alone is not enough, if we are to intelligently conserve, manage, and protect our natural and human resources. An introduction to and awareness of the natural surroundings provide a basis for direct human interaction with environmental phenomena and enhance leisure-time activities and recreation.

Funded by the National Institute of Education (NIE), the New Hampshire School Supervisory Union 58's Experimental Schools Program (ESP) project has developed a comprehensive (multi-grade) EE instructional program for purposes of effecting student awareness of and exposure to both natural and social environments.

For the 1976-1977 school year, the Union 58 ESP project's environmental education instructional program consists of:

1. SEA Lessons: A series of lessons and units (developed by classroom teachers) which are geared toward student awareness of and exposure

to life space environments and natural/social phenomena. Instructional materials have been developed and/or purchased which compliment the SEA lessons which may be geared to classroom activities or may require students being taken outdoors for awareness activities.

2. Field Trips: Opportunities for students to be taken out of the classroom, on well organized and planned learning experiences into both the natural and social environments of the community at large or selected portions of the total area. The field trip program consists of three separate but interrelated parts: pre-planning, the actual excursion, and post-trip follow up.

3. Nature Walks: These activities can take place on the school ground or far removed from the classroom. Students are exposed to a particular segment of the total life-space environment. Usually, the activity is a brief encounter with an easily identifiable community phenomenon, requiring only a few minutes to conduct.

4. Guest Speakers: For those locations, people, and processes not readily accessible to students, community resource people can be asked to visit classrooms.

5. EE Lab Sites: Areas within the community environment(s) which are set aside for student use: nature walks, camping and hiking, and nature studies.

6. Weekend Daytrips and Overnights: Opportunities for students (grades 7-12) to interact with both the natural and social life space environments of the total community. Students learn basic camping techniques and skills and have the chance to apply training in the natural surroundings.

The ESP environmental education project has developed a Seashore Environment Kit, complete with seashore artifacts; a Land Use Study Kit, complete with aerial photos; and a grade nine EE/Earth Science Course.

---Richard O. Peters
October 1976

1973 DIRECTORY REFERENCE: pp. 390-392

1975 DIRECTORY REFERENCE: p. 70

ERIC DOCUMENTS:

1. Strategies to Affect Student Awareness of Natural and Social Environments in Outdoor Education: A Resource Guide. ED 092 300
2. The World of Man: A Curriculum Guide. ED 107 549
3. The Utilization of National, Social, and Human Community Resources in the Process of Student Career Awareness Development. ED 121 991.
4. Strategies to Affect Student Sensory Awareness of the Environment in a Rural School Setting: Kindergarten through Grade Three. ED 125 838
5. How to Take the Classroom Out Into the Environment: A Resource Guide. ED 125 856
6. The Community, the Social Studies, and Student Environmental Awareness. ED 125 956

SQUAM LAKE SCIENCE CENTER INC.

Robert E. Nichols, Director; Squam Lake Science Center, P.O. Box 146, Holderness, New Hampshire 03245; (603)968-7194.

The Science Center is a non-profit educational institution, incorporated under the laws of the State of New Hampshire and founded in 1966. It is governed by a corporation of 175 members who elect the center's officers and Board of Trustees at their summer annual meeting.

Educational Goals:

1. Environmental Awareness: Through a wide variety of programs, the Center encourages visitors to use all of their five senses. Visitors thus become more aware of their environment, more sensitive to its delicate beauty, and develop a "feeling" for the processes which govern our existence on this planet.

2. Environmental Knowledge: One must not only have a "feeling" for the processes which govern our existence but also have an understanding of how the life processes operate. Thus concepts and facts are emphasized and a variety of techniques are used to reinforce these concepts.

3. Environmental Activism: The Center can only reach a finite number of students and adults in a given year, but its visitors also learn to reach out and communicate this newly discovered awareness, knowledge and enthusiasm to others.

Facilities:

The Center's 200-acre site is divided into three different educational areas:

1. Man and His Environment: Renewable and non-renewable resources are the subject of this area. An old logging road winds its way past an authentic and functioning blacksmith shop, steam-powered sawmill and an original 18th century saphouse. A new exhibit on solar energy interprets man's future needs and uses of the environment.

2. New Hampshire Animals Up Close: Sixteen indoor and outdoor exhibits emphasize the natural history of native animals. Live bear, deer and bobcat are found in natural settings.

3. Natural Ecosystems: 2.7 miles of nature trails meander past fields, meadows, ponds, numerous mountain streams and many diverse forest habitats.

Major Programs:

1. Summer Program: July 1 through Labor Day. This program reaches over 12,000 visitors annually including campers, Boy and Girl Scouts, local residents and the general public. All of the Center's trails

and exhibits are open. Lecture demonstrations are given in a barn-auditorium. Discovery presentations and other events occur along the trail system.

2. Spring and Fall School Program: April 1 through June 15, and September 20 through November 15. The Center's school program, "The Nature of Things" reaches 7,500 elementary and high school students annually, 10% of these from out of state. All of the Center's trails are open for this program along with many of the summer exhibits. The school offering includes 10 indoor lecture demonstrations and 10 outdoor discovery presentations.

3. Winter School Program: January 1 through March 31. "Winter Ecology" and "Reading the Winter Landscape on Snowshoes" are the two offerings made to schools during the winter months. The former involves an indoor demonstration at the school using live native animals, three-dimensional props and graphic artwork to convey the winter theme. The latter offering is conducted out-of-doors on snowshoes. Groups of 15 or less learn first hand about their winter environment. These two offerings annually reach 4,000 students.

Other People and Organizations Reached:

1. School teachers: In-service workshops are offered on such topics as designing nature trails, using the out-of-doors as a teaching resource, and natural history enrichment.

2. New Hampshire Fish and Game Department: The Science Center is active in the rehabilitation of injured native animals while educating the public to the value of these important creatures.

3. Universities: Intern program and research programs.

4. Campgrounds: Environmental presentations.

5. Communities: Opportunity to become part of an environmental movement through volunteer service.

6. Service Clubs: Garden, Rotary, Lions and University Clubs.

Operational Income:

Admissions--23%; Memberships--30%; Annual Giving--37%; Grants--10%; All donations are tax deductible.

Staff:

Robert E. Nichols, Director; Peter J. Hendel, Assistant Director; Earl F. Hansen, Naturalist; Thomas J. Kruzshak, Naturalist; Marjorie A. Needham, Office Manager; plus 100 volunteers.

---Robert E. Nichols
October 1976

ENVIRONMENTAL EDUCATION PROGRAM

James W. Morrison, Assistant to the President, Saint Anselm's College, Manchester, New Hampshire 03102; (603)669-1030.

After four years of funding, our Environmental Education program which was sponsored by USOE/Office of Environmental Education was not renewed for the fifth year.

---James W. Morrison
October 1976

1975 DIRECTORY REFERENCE: pp. 349-352.

ERIC DOCUMENTS:

A Manchester Watershed Training Project. ED 107 471.

ENVIRONMENTAL EDUCATION CENTER

Walter A. Jones, Director of Environmental Education, Somerset County Environmental Education Center, 190 Lord Stirling Road, Basking Ridge, New Jersey 07920; (201)766-2489.

The Somerset County Environmental Education Center is a project undertaken by the Somerset County Park Commission with the support of the Somerset County Board of Chosen Freeholders. The initial planning began in 1969, followed by land acquisition in 1970, and the commencement of development of physical facilities in 1971.

The project encompasses 400 acres of land. In addition to the new 18,000 square foot solar heated and cooled Interpretive and Education Building, it includes 8½ miles of trail with nearly two miles of boardwalk, ponds, observation shelters, observation towers, land and wildlife management demonstration areas, an animal care facility, and an insect exhibit building.

The purpose of the Center is to stimulate awareness and understanding of our total environment, natural and altered, among people of all ages by providing learning experiences which cannot be duplicated in any other type of facility, and to develop a sense of responsibility for the care and wise use of our natural resources.

Since land acquisition was completed in 1970, over 85,000 people have participated in the pilot programs of the Center. The Center was the first of its kind as an Environmental Education Center in New Jersey, and one of the very first in the nation.

Subsequent to commencement of physical development in 1971, the Somerset County Environmental Education Center has had major support and involvement from several Federal and State of New Jersey agencies:

United States Department of Housing and Urban Development

United States Department of Agriculture Soil Conservation Service

United States Department of Interior
  Bureau of Outdoor Recreation
  National Park Service
  Bureau of Sport Fisheries and Wildlife

United States Energy Research and Development Administration

New Jersey Department of Environmental Protection Green Acres Program

Also, there have been over 315 financial contributions totaling over $120,000 from civic organizations, industries, foundations, youth groups, businesses, and individuals to help make the Center a reality.

The project, therefore, represents successful intergovernmental coordination of Federal, State, and County governments, with the enthusiastic support of industry and business and thousands of citizens to create an educational facility of unique value.

(December 1976)

NEW JERSEY SCHOOL OF CONSERVATION

John J. Kirk Jr., Director and Professor of Environmental Studies,
Montclair State College, Branchville, New Jersey 17826; (201)948-4646.

The New Jersey School of Conservation is operated by Montclair State College and serves as the field campus for environmental studies. It is located in the midst of 25,000 acres of State Forest and State Park and annually serves upwards of 10,000 students for resident experiences in environmental education. The students in attendance range from eight year olds (grade three) through doctoral candidates.

The philosophy of the School of Conservation is to utilize the various subjects in the curriculum, divided into four major categories - humanities, social studies, outdoor pursuits, and the natural and physical sciences - for the purpose of developing in students a realization concerning the role that natural areas play as part of a life-support system. The program emphasis is on the cultivation of attitudes and values which should enable the participant to better understand and appreciate the interrelationship and interaction of all living and nonliving things. All programs at the School of Conservation are related very closely to environmental problems in the community where the students live. This enables teachers to utilize the resident experience as a catalyst for environmental projects conducted in the classroom and the community.

The School of Conservation is in its twenty-seventh year of operation as a resident environmental field center.

---John Kirk
December 1976

GATEWAY NATIONAL RECREATION AREA

Gateway National Recreation Area, Sandy Hook Unit, P.O. Box 437, Highlands, New Jersey 07732; (201)872-0092.

Overall Purposes and Specific Objectives:

1. To make a protected natural area available to local schools for the purpose of interrelating youths with nature, so as to motivate thought and action toward exploring personal values in respect to wildlands preservation and environmental integrity.

2. To promote a "sense of wonder" toward nature, and a sense of personal responsibility toward the protection of natural systems, and the incorporation of nature into cultural environments.

3. To promote the use of the "environmental strands" concept of exploring environments in order to interrelate the natural processes affecting both the park environment and the home environment; the natural environment and the cultural environment.

4. To explore the effects of technology and other human actions on natural systems.

Target Audiences: Elementary School Students, Grades 3 through 6.

Eventually, we would like to extend the program to include Junior High Students, Grades 7 through 9, and youths participating in scouting and other similar organized activities.

Methodology:

A 3-phase program consisting of pre-site, on-site and post-site components. The environmental strands will be used to explore both the home and park environments. Consideration and comparison of these experiences should motivate action toward environmental improvement at home during the post-site phase. This tripartite approach insures the extension and continuation of the brief park experience, and prevents the separation of the park and home experiences.

Preparatory teacher workshops will be presented in April and September in preparation for school visits in May and October.

An expansion of the Holly Forest section of our present environmental education guide, "Environmental Education...An Alternative Approach," will be prepared by April 1977.

Funding Sources:

Funding will be covered by our regular NPS operating program, unless other monies are available.

Project/Program Evaluation:

This must rely on unsolicited responses from teachers and students. We will encourage such, and verbally obtain feedback.

Plans for the Future:

Extension of the program is expressed above. Final program direction will meet the guidelines of the approved General Management Plan for Gateway NRA.

Other Uses of the Area:

Conducted trips for general park visitation are led along the trails of the Holly Forest. Organized group camping is adjacent, but separated by a fence. It is a good area for birdwatching and people may be fishing along the bay.

(December 1976)

THE COMMITTEE FOR A BETTER ENVIRONMENT, INC.

J. Douglas Sinclair, Chairman; P.O. Box 209, Holmdel, New Jersey 07733.

The Committee for a Better Environment, Inc. (CBE) continues to provide a portable Environmental Education Kit for loan to elementary schools throughout New Jersey and parts of the New York Metropolitan Area. The Kits are intended to provide the essential materials needed for teachers of grades K-4 to create three or four week units on environmental education. A new 65-page manual with instructions on the use of the materials and visual aids is a vital part of the Kit.

CBE continues to encourage teachers to assemble their own Kits. The new manual includes detailed information on how the CBE Kits were made and where all the materials can be obtained. Manuals are available from CBE for $5.00.

This year in conjunction with Environmental Education Publishing Service, 136 Highway 35, Eatontown, New Jersey 10024, CBE has published its highly-successful environmental Bingo game entitled "Pollution and You." The packets contain all the materials necessary for a class of 25, and is available for $2.00.

In response to teacher demand, CBE is now developing an Environmental Education Kit for grades 5-9. The program will be similar to the primary-grades program, but will place more emphasis on activities simulating the tradeoffs between natural-resource conservation, environmental protection, productivity, and development. Equipment for measuring air and water pollutants will provide a science activity with real-world significance. CBE expects to begin loaning a prototype Kit to local schools in the spring of 1977.

---J. Douglas Sinclair
October 1976

1973 DIRECTORY REFERENCE: pp. 401-402

1975 DIRECTORY REFERENCE: p. 73

VINELAND PUBLIC SCHOOLS ENVIRONMENTAL EDUCATION PROJECT

Charles F. Valentine, Principal, Marie D. Durand School, 371 West Forest Grove Road, Vineland, New Jersey 08360; (609)691-1657.

Overall Purpose:

1. To infuse environmental education objectives into the pre-school through twelve grade curriculum in all subject areas.

2. To guide teachers to the realization that they are in an excellent position to sensitize youth to the environmental crisis which currently confronts mankind.

3. To help teachers to identify the advantages and importance of environmental education in achieving most of the current basic skills objectives for the students.

4. To direct teachers to identify ready areas of environmental education correlation in the present curriculum and/or subject being taught.

5. To prepare appropriate written publications to assist all of the teachers in conducting environmental education correlations in teaching on a daily basis.

Specific Objectives:

The several hundred specific objectives are included in the K-12 Environmental Education Guide.

Target Audience:

The target audience for this project includes the following: 12,000 students; 850 certificated personnel and paraprofessionals.

Methodologies:

1. The inter-disciplinary approach is the most significant proposal for the infusion of environmental education into the Vineland Public Schools Curriculum.
2. Educational field experiences at City of Vineland at Cumberland County Sites.
3. Marine Life studies at the wetlands of the New Jersey shore and the Delaware Bay.
4. Demonstration lessons by consultants from the Conservation and Environmental Studies Center located at Browns Mill, New Jersey.
5. Guest speakers from federal, state, county and local government and also from industry including Public Service Electric and Gas Company and the New Jersey Bell Telephone Company.
6. Participation in the President's Environmental Merit Award Program sponsored by the Environmental Protection Agency.

Materials Produced:

1. Production of twenty-five Environmental Education Units to be utilized from Pre-School through Level Twelve and written specifically for the respective age groups. These twenty-five units are annotated in our publication Environmental Education -- It's Our Concern!
2. Environmental Education Supplementary Materials for Junior High School with K through 12 Correlation Value
3. Vineland and Its Environmental Resources
4. Cumberland County and Its Environmental Resources
5. An Environmental Access Trail for the Vineland Public Schools (located at the Marie D. Durand School Site).

6. Vineland Public Schools Environmental Education Guide, K-12. This 104-page guide may be the only Kindergarten through twelve document of its kind in New Jersey and is published and bound in the Vineland Public Schools Science Curriculum Guide, K-6. It represents an important beginning for the correlation and articulation of the entire Vineland Public Schools Educational Program.

7. Vineland Public Schools Environmental Studies Planning Committee Report

Funding Sources:

The funding source for this project was the Vineland Board of Education. Approximately $5,000 per year has been budgeted to facilitate and encourage the Environmental Education Program. In addition, hundreds of volunteer hours have been devoted to the project.

Program Evaluation:

This program development and inauguration has been supervised by the Staff of the Conservation and Environmental Study Center located at Browns Mill, New Jersey and the publications have been printed by the Educational Improvement Center - South, of the New Jersey State Department of Education. No formal evaluations of the program have been undertaken to date and no written evaluations of the programs are available.

Plans for the Future:

1. In-service education for the respective school principals in order to firm up their commitment for environmental education.

2. In-service education for the teachers in order to increase competencies, to alleviate any fear of including environmental education in daily lesson planning, and to secure dedicated commitment for the philosophy of the program. Workshops in the use of the published materials are a proposed facet of this teacher in-service.

(October 1976)

ENVIRONMENTAL STUDY AREAS, WHITE SANDS NATIONAL MONUMENT

Superintendent, White Sands National Monument, P. O. Box 458, Alamagordo, New Mexico 88310.

Two areas at White Sands National Monument have been designated as National Environmental Study Areas (NESA's). These are the Big Pedestal and Garton Lake. At Big Pedestal NESA, desert ecology is studied.

Garton Lake, a man-made artesian lake, presents a look at aquatic and semi-aquatic life forms. With utilization of both areas, direct comparison can be made between desert and aquatic ecology.

Purpose:

The purpose of our NESA is to awaken an awareness and appreciation among young people for man's place within the total environment. The program is orientated for, but not limited to, 6th grade studies. With three specific objectives we strive to meet this goal:

1. To introduce the student to his total environment, cultural and natural, past and present.
2. To develop an understanding of how man is utilizing the resources of his environment.
3. To help equip the student to be a responsive and active member of the world he is shaping and being shaped by.

Methodologies:

We at White Sands believe that advance preparation is vital to the success of the program. We present a teacher's workshop annually. The teachers can check out a pre-site kit, which they review and use all or part in preparation of the students for their field environmental studies. We also, upon request, provide on-site orientation for teachers.

Upon student arrival, a ranger presents a short pre-talk and shows our ten-minute orientation slide show. He helps students find answers to the questions in their workbooks and about the work of a ranger. At this time a NESA kit is made available for usage in the study areas.

Materials Provided:

A pre-site kit is provided for usage before coming to White Sands National Monument. This consists of four 16-minute color films, two books on the presentation of ecological concepts in the field, a student workbook for each student, a natural history handbook, a set of slides of the NESA's, and a teacher's guide. Our ten-minute slide show is presented to the students. We also have a NESA kit. This is a metal cabinet with various types of experimental equipment. This can be taken to the study areas and the proper equipment used for the planned experiments.

Program Funding and Evaluation

The White Sands National Monument NESA program is funded mainly through the Interpretive Division's operational funds. The materials for the student workbooks and the teacher's guide are supplied by our operational funds and the printing of these books is done by the Alamogordo, New Mexico School District.

We ask teachers to evaluate the program. This gives us feedback as to its success and usefulness. There are no published reports being filed at this time. However, usage is recorded in the National Park Service Annual Public Contact Report.

Future Plans:

We plan to continue our annual teacher's workshop. There is also a revision of the student discovery workbook in the making. We plan for a revision of the environmental nature trail at Garton Lake. Plans for an interpretive shelter in the Garton Lake area have also been made. We also plan to supply the sixth grade teachers of the local school district with two books which may be helpful in presenting environmental concepts.

---James M. Thomson
December 1976

BANDELIER NATIONAL MONUMENT

Superintendent, Bandelier National Monument, Los Alamos, New Mexico 87544; (505)672-3861.

An Environmental Study Area was created in Bandelier National Monument as part of the National Environmental Education Development (NEED) Program. The ESA proper is located in Frijoles Canyon, a site where man's interaction with his environment has been continuous for centuries, yet it remains a natural area.

The primary purposes of our ESA are to provide an area where students can study man's interaction with his environment and the ecosystem of Bandelier National Monument. Frijoles Canyon provides the opportunity to view an ecosystem and man's interaction with this ecosystem from prehistoric on through modern times.

This ESA is used by local school groups, primarily from the Los Alamos Public School System. They function primarily independently. The strands concept developed by the National Park Service is used extensively.

Materials such as films, publications, etc., provided by the National Park Service are made available. Teacher workshops are conducted periodically.

A handbook on "Teacher Aid Materials for the Bandelier Teacher's Workshop" has been printed for the use of local teachers.

Plans for the future are to continue the present program with local schools. More materials may be developed at a later point in time.

(December 1976)

RURAL PLANNING CONFERENCE

Dr. Alan M. Schwartz, Director of Environmental Studies; St. Lawrence University, Canton, New York 13617; (315)379-5357.

With the awarding of a P.L. 93-278 mini-grant on July 1, 1975, we moved our target date for our major conference on Effective Rural Planning to September 1975. The majority of the summer was spent on identifying both speakers and participants, and outlining the most critical topics to best meet our goal of heightening awareness to the unique needs of rural planning. The conference was held on September 26-27, 1975 at the St. Lawrence University Conference Center, Saranac Lake, New York. Approximately one-half of St. Lawrence County municipalities were represented, as were planning agencies from neighboring counties, three New York State Regional Planning Commissions, and members of academic institutions and consulting agencies.

After the conference, discussion centered on how regional follow-up conferences could best meet the needs of the participants. A questionnaire was developed and distributed to aid in the assessment of the problems and opportunities in the next phase of the grant.

Since the conference, many requests for us to stage similar conferences have come from surrounding counties. To meet the needs of other rural groups, a grant request for developing resource materials that grew out of this conference via publication of a "Handbook on Effective Rural Planning" was filed for fiscal year 1976-77, and was awarded.

Summary of Conference Highlights:

Dr. Alan M. Schwartz, Director of Environmental Studies at St. Lawrence University and Conference Director, started off the proceedings with an overview of planning. He explained several social movements which result in greater rural involvement in planning, such as growth, suburbanization, and increasing demands on the natural environment which have led the Adirondack Park Agency and St. Lawrence Eastern Ontario Commission to require local planning. Effective local planning is a way for rural communities to retain control over their own destinies in the face of higher levels of government control and incremental changes which destroy community character.

Citizen Involvement in Planning:

Steven Dean, associate planner with the St. Lawrence County Planning Board, explained the process of surveying citizen values and opinions through the use of questionnaires. In addition to informing planners of citizen's desires, the questionnaire alerts local people to the beginning of a planning process, and gets them thinking about the land use issues in their community.

Mary Rutley, Colton Citizens for Land Use Planning, described the unfortunate experiences of one town whose citizens' comments on the town plan were solicited only after the plan was nearly complete. These citizens were offered a minor choice of variations in a plan without having been in on any of the previous steps in the process. Since this time, an active citizens group to monitor the Town Planning Board has been created to insure citizen input.

Warner Dietz, Chairman of the North Elba Planning Board, presented practical advice on how to run a public meeting for clarity of presentation and maximum citizen involvement.

Intelligent Land Use Principles - Rural Resources:

Dr. John Green, Biology Professor at St. Lawrence University, spoke about non-market values of natural resources, the importance of a diverse natural environment for stability and resource regeneration, and the special amenities of rural land.

Dr. George Armstrong, College of Environmental Science and Forestry, Syracuse, stressed ethical standards in decision theory as used by local planning boards, who must identify their constituencies and weigh the various values and preferences to establish workable community goals. He pointed out some of the radical changes in land values which result from planning actions, and suggested ways to improve the overall value of a rural community - for instance, creating forestry, recreation, or natural resource protection districts similar to agricultural districts, or combination of several small towns for economical provision of services.

Intelligent Land Use Principles - Inventory and Analysis:

William Johnstown, director of Essex County Planning, conducted a workshop on inventory and analysis of man-made community features such as roads, housing, and sewage or water systems, using as an example a rural town where population was declining and housing and service were deteriorating.

Richard Shaw, with Roger Trancik Associates, conducted a workshop on natural and visual resources inventory and analysis, using the method of map overlays of various natural resource elements. He pointed out the important things to look for in evaluating location of future development, and also gave suggestions about preserving a town's visual character.

Translating Citizen Goals, Data, and Principles into a Plan:

Ian Walker, Environmental Analyst with New Jersey's Department of Environmental Protection, spoke to the need for citizen involvement throughout the planning process from the selection of well-defined and attainable community goals, through choosing a consultant and demanding of a consultant the type and quality of work the community desires.

Richard Grover, Director of St. Lawrence County Planning, stressed the importance of establishing goals to suit the individual character of each town. The final plan is merely a reflection of these goals, given the resource characteristics and settlement patterns that already exist.

The Town of Stockholm's innovative planning process was discussed in detail. If the plan relates in a logical way to community goals, it is easier to defend and implement than if it is an arbitrary application of standard planning techniques.

Implementation:

Ron Randall, Town of Wilmington and Essex County Planning Boards, pointed out some of the planning board's problems (political and otherwise) in handling criticism and variance requests after the plan and land use controls have been passed by the Town Board. He stressed the need to be firm, yet open to changes and continuing citizen input.

--Alan M. Schwartz
October 1976

ENVIRONMENTAL ACTION COALITION

Nancy A. Wolf, Environmental Education Consultant; 156 Fifth Avenue, Suite 1130, New York, New York 10010.

The Environmental Action Coalition was founded in 1970, after the first Earth Day. Since 1971 it has supported a program in environmental education, basically oriented to the urban environment and primarily aimed at students and teachers in the upper elementary grades. However, as knowledge of our work and our publications has spread, we have been of assistance to all levels of education, from pre-school to adults.

Our overall objective, toward which all of our specific projects aim, is to spur the development of environmental teaching throughout the educational and community activity system. We have encouraged teachers on all levels to integrate environmental principles into their various curriculum subjects. We have also sponsored the teaching of environmental education topics as a separate part of the curriculum. We constantly strive for a combination of classroom teachers and outside resource persons who will together open up the world of the urban environment to students and activists of all ages.

Our direct target audience has of necessity been in the Greater New York Metropolitan Area, since it is physically impossible for our staff to conduct field work at distant points. However, through the distribution of our printed and reproduced materials, we have reached a nation-wide constituency.

Since 1971 EAC has published Eco-News, an environmental newsletter for children in Grades 4-6. It is now published seven times per school year, and is sent nation-wide, as well as to several foreign countries. There have been numerous favorable reviews of Eco-News in newletters and magazines that serve the educational and environmental community. It has been used many times as a supplemental resource for programs conducted by other organizations. Two examples are those courses taught by the American Museum of Natural History and the Gateway National Recreation Area, the first Urban National Park.

Through special funding by the Deerfield Foundation and Prospect Hill Foundation, EAC was able to research, develop and test three curricula in environmental education. Our first curriculum, "Don't Waste Waste," gives an overview of the many interrelated problems of solid waste, as well as exploring in depth such sub-topics as "Recycling," "Solid Waste Disposal," and "Packaging."

"Less Power to the People," our second curriculum packet, investigates energy and the environment and focuses on action projects that young people and adults can do to help conserve energy and use forms of energy that are least-polluting. Our energy materials have provided impetus to our overall program, since, through them, we have been able to speak about the topic to many audiences, including school children. We have also conducted many teacher workshops under special funding, and have generally been recognized as one of the leaders in education projects on the relationship of energy and the environment.

"Green Spaces in City Places", our third teaching packet, spotlights the urban natural environment and opens the eyes of young people and adults alike to the beauty and importance of trees on the street. This packet has led to many in-school teaching projects by AEC's staff, and has become an on-going project every spring and fall. The packet contains classroom lessons in botany and general tree information, as well as outdoor activities where students conduct experiments and actually care for trees on city streets.

Our tree care lessons have led to our latest successful film, entitled "Something for the Trees...Something for the City." The film presents an urban neighborhood as it organizes for care of its trees. We see teachers, students, community activists and concerned residents as they care for trees. The film both motivates and instructs in this important natural urban area. This film will be widely distributed in the New York City area this fall, and will join our other film, "The Village Green," in nation-wide distribution in 1977.

Our plans for the future include the development of at least two new curriculum packets, on land use and on transportation. We will be seeking funds to conduct more workshops and direct classroom presentations. We continue to write for other publications, such as Instructor magazine, and to plan new books to add to the two we already published through Charles Scribner's Sons.

---Nancy A. Wolf
October 1976

1975 DIRECTORY REFERENCE: p. 228

ERIC DOCUMENT:

Environmental Education Program: Final Report. ED 104 640

PROJECT CUE: THE NATIONAL URBAN LEAGUE COMMUNITY URBAN ENVIRONMENT PROJECT

Paul Danels, Project Director; 500 E. 62nd Street, New York, New York 10021; (212)644-6500.

Overall Purpose:

To develop an informed minority perspective on environmental issues.

Specific Objectives:

To develop a training program curriculum for urban community-based minority groups leaders in environmental/ecological issues, relationships and analysis.

Target Audience:

Minority group leaders/organizers, emphasis on the inner city.

Methodologies:

The curriculum will make extensive use of audio-visual materials, including slide shows, videotapes and pamphlets. It will be culturally specific and employ the vernacular as motivational and communication tools.

Materials Produced:

The following audio-visual products are under production:

1. A slide show on how general environmental issues affect inner-city people.
2. Three individual slide-shows more intensively treating:
   a. Pollution/Toxic substances, e.g., air, water, noise, occupational safety, environmental health
   b. Solid waste
   c. Energy and its relationship to technology and employment
3. Three videotaped case studies of local programmatic actions, e.g., videotape documentary of inner-city community group on the Lower East Side (NYC) installation of solar collector on the low-income, sweat-equity cooperative.

Funding Source:

Office of Environmental Education, DHEW.

Plans for the Future:

The project's materials will be used in stimulating the participation of local minority group leaders in the local environmental decision-making processes. Both motivational and instructional, they will lay out priority urban environmental issues and provide the tools to assess options and act upon those issues in their own communities.

---Paul Danels
October 1976

ERIC DOCUMENT:

Population Policy and the Black Community. ED 096 377

ENVIRONMENTAL HEALTH

Irving J. Selikoff, M.D., Research Professor Emeritus, Environmental Sciences Laboratory (Division of Environmental Medicine), Department of Community Medicine, Mount Sinai School of Medicine, City University of New York, 100th Street and Fifth Avenue, New York, New York 10029.

The overall purpose of the unit is epidemiological research in the area of Environmental Health, with major emphasis on Occupational Health. Teaching (training) is limited to medical students and to Occupational Medicine Residents, as well as to the House Staff of the associated hospital (Mount Sinai Hospital). Our Occupational Medicine Residency Program is approved for training by the Liaison Committee on Graduate Medical Education.

Our funding sources are principally the Federal Department of Health, Education and Welfare and the American Cancer Society.

Our plans for the future are to continue our current program in research and to expand our education program.

---Harry Heimann, M.D.
October 1976

SAGAMORE HILL ENVIRONMENTAL STUDY AREA

William Gibson, Chief, Visitor Services, Sagamore Hill National Historic Site, Cove Neck Road, Box 304, Oyster Bay, New York 11771; (516)922-4447.

The Sagamore Hill ESA is located on a 30-acre portion of the 85-acre Sagamore Hill National Historic Site. Natural features include a mixed eastern hardwood forest type, meadow, orchard, fresh water ponds, salt water marsh and shore frontage on Long Island Sound. Cultural features include the home and grounds of the late President Theodore Roosevelt's farm. A one-half mile loop trail through the woodland crosses the salt marsh on a footbridge and runs along the beach. The Old Orchard Museum, formerly Theodore Roosevelt Jr.'s home, includes an auditorium with facilities for viewing film and videocassette programs.

In general, the facility is designed to provide a resource for group use under the guidance of group instructors. Park personnel are insufficient to serve in a regular teaching capacity but do work with visiting groups in an advising capacity. Use of the NESA has been de-emphasized during the past year due to the needs of the interpretative program in the House. However, the year's use consisted of 11 groups totaling 532 persons; since the NESA was initiated in 1968, some 4100 persons used the area. The groups have consisted chiefly of grammar school level from nearby school districts, with limited high school participation. Boy Scouts from the town of Oyster Bay have used the site in conjunction with their conservation merit programs.

---William Gibson
December 1976

ENVIRONMENTAL STUDIES INSTITUTE

William C. Ritz, Director; Suracuse University, 213 Huntington Hall, Syracuse, New York 13210; (315)423-4217.

Funds for the continuing operation of the Environmental Studies Institute of the School of Education at Syracuse University have not been incorporated in the 1976-77 budget. The decision to discontinue ESI's operation is a direct result of the widespread financial squeeze which has affected so many organizations across the nation.

Established in December of 1969 as a vehicle for providing Syracuse University and the local community with a means of dealing with environmental problems through educational programs, ESI was expected to eventually become financially independent through external funding, which was at that time predicted to become abundant. However, as the financial condition of all facets of higher education steadily deteriorated in recent years, grant monies became more and more scarce for those working in environmental education. As a result, ESI remained dependent upon the School of Education budget for its basic operating expenses. The grants which were obtained were simply inadequate to enable the Institute to continue its basic operations.

The Institute's on-going sponsored projects will be carried through to their full completion; included are both the People and Technology and Essence implementation projects.

---W. C. Ritz
October 1976

1973 DIRECTORY REFERENCE: pp. 439-440

1975 DIRECTORY REFERENCE: p. 82

BOCES/ECOS TRAINING INSTITUTE

Dr. Frank Thompson, Project Director; 833 Fox Meadow Road, Yorktown Heights, New York 10598; (914)245-4009 or 6919.

The ECOS Training Institute offers three-day workshops in a process of curriculum design using environmental education as a model. This curriculum design process has infusion as its core. The ETI process has proved effective on a national level in assisting diverse local school districts to meet their educational priorities (e.g., environmental education and career education, among others). Participants actively engage in curriculum design, stewardship, and community-classroom interaction.

The program adapts to any teaching style because the teacher uses her/his existing program to involve students in environmental studies and activities. Use of existing equipment, facilities, school grounds and local community is built into the program.

Teams of 3-8 educators from one school plant are trained to plan a curriculum and implement the program. Prior to training, the superintendent must complete a district profile and sign a letter of agreement which provides that (a) workshop participants will have planning time to meet as group, if they wish, for a period of nine months after the workshop; (b) workshop participants will present an awareness program to colleagues, Board of Education and community members.

Classroom teachers then implement their own curriculum designs. However, a building administrator must be on the training team to provide needed administrative support.

Training is available for teachers K-12, administrators, community representatives and resource personnel within the school district. To support training handbooks on the curriculum infusion process, activities and community involvement (including how to conduct a student survey) are available.

Since 1974 the ETI has trained educators from 230 school districts in 23 states. These activities were made possible by a grant from the U.S. Office of Education as part of the National Diffusion Network. Training activities as well as technical assistance to adopting districts are expected to be available through 1977. A grant from New York State Title IV-C supports operations in New York State.

---Laura Kelly Higgins
Resource and Research Associate
October 1976

1973 DIRECTORY REFERENCE: pp. 443-445

1975 DIRECTORY REFERENCE: p. 84

ERIC DOCUMENT:

Environment: A Humanistic Approach. ED 103 197

ENVIRONMENTAL EDUCATION PROGRAMS

Charles T. Vizzini, Science Curriculum Specialist, Charlotte-Mecklenburg Schools, P. O. Box 149, Charlotte, North Carolina 28230; (704)372-8620.

Our environmental education efforts have come a long way since federal funding in 1968 was provided to develop an Outdoor Laboratory Program (Independence Outddor Laboratory) at a local high school. Our latest major emphasis has been the development of an Environmental Education Center which is in joint cooperation with the Charlotte Nature Museum as of 1973.

The center has a staff of three helping teachers hired by the Charlotte-Mecklenburg Schools and one museum liaison officer. Their duties are responsibilities affect the entire science curriculum within this system. Environmental education complements the existing curriculum rather than being a separate course, the only exception being at the high school level, where an elective course can be offered.

Several programs are in operation at this time. They include: Valuing the Environment (both for elementary and secondary); Outdoor Laboratory Program, K-12; Outdoor Education Camping Program, 6th grade; and a Summer Camping Program, grades 10-12, Man and His Environment.

The Valuing the Environment materials are either interdisciplinary or multidisciplinary in content utilizing values clarification strategies as a basis for student activity-oriented encounters within the classroom, on the school grounds or within the community. The program strives to develop an awareness at the elementary level and get into more problem-solving situations as the students progress to high school.

The Outdoor Laboratory Program encourages all schools to take advantage of existing woodlots, fields and the like adjacent to or on school grounds for environmental studies. Approximately 40 schools out of 108 are involved in this program. Supplementary materials have been written which complement the outdoor activities. Title III funds in 1968 provided for its beginning.

The Outdoor Education Camping Program was piloted during 1975-76 for sixth grade students utilizing two privately-owned camps. Students participate in 2½-day activities at camp which strive to develop awareness and knowledge by exposing students to new experiences in the natural environment and to foster self-improvement and group interaction. The program is funded by tuition and scholarship monies with emphasis placed on Your Environment Series developed by the Forest Service and adapted to local needs. Student participation is expected to double during 1976-77.

In addition to the above, high school students participate in a summer cross-country camping program that is interdisciplinary in nature encompassing comparative ecology, environmental studies, American history, literature, historical geology, canoeing (when available), backpacking and fine arts. We attempt to make our students sensitive to the natural environment and to develop within them a sense of responsibility for it, themselves and others. High school graduation credit is available. It is tuition-funded, and some scholarship money is provided. All areas of the United States, except the Florida Everglades, have been studied in addition to many in Canada and Mexico during the last nine years.

---Charles T. Vizzini
October 1976

1973 DIRECTORY REFERENCE: pp. 448-449

1975 DIRECTORY REFERENCE: pp. 85-86

ERIC DOCUMENT:

Valuing the Environment, Elementary. ED 106 087

ENVIRONMENTAL SCIENCE PROGRAM

James B. Annas, Granite Falls Elementary School, P.O. Box 466, Granite Falls, North Carolina 28630; (704)396-2222.

Our Environmental Science program was discontinued in 1974-75 at the close of the school year. Trails and materials are available for our use as needed.

---James B. Annas
October 1976

1975 DIRECTORY REFERENCE: pp. 231-232.

MURPHY HIGH SCHOOL NATURE TRAIL

Mrs. Geraldine Meadows, Murphy High School, Murphy, North Carolina 28906; (704)837-2426.

Our nature trail has been destroyed due to the construction of a new four-lane highway. We must wait until the road project is complete before we make plans for a new trail.

---Geraldine Meadows
October 1976

1975 DIRECTORY REFERENCE: p. 233

ENVIRONMENTAL PROBLEMS AND ALTERNATIVES ASSOCIATED WITH ENERGY DEVELOPMENT IN NORTH DAKOTA

David Givers, Coordinator, Community Environmental Education Programs; Center for Environmental Studies, Tri-College University, 302 Stevens Hall, North Dakota State University, Fargo, North Dakota 58102; (701)237-7353.

The final report of our project funded under P. L. 93-278 (Grant #G007501078) is reproduced below. In addition to this activity, field trips and seminars have been conducted. A current project of community education involves working with a number of citizens' groups and agencies to find solution to a local river basin flooding problem. Our only source of funding is through grants and contracts.

Objectives of Grant Program:

1. To enrich and aid the state, local political sub-divisions, and concerned citizens with factual information regarding environmental and socio-economic impacts due to energy development in North Dakota and the surrounding region.

2. To develop instructional materials such as slide series which can be utilized by citizen's groups following the workshops.

The citizens of North Dakota and the surrounding upper Great Plains have recognized that energy resources consumption and energy resources development will have extensive and long-lasting effects on the existing regional patterns of their lives and livelihood. The awareness of impending change has increased over a number of years now; however, a full understanding or knowledge of the impact of coal development has not generally become a part of the debate regarding those impacts. As the scale and intensity of coal development increased, so has the volume of research reports and planning studies. Frequently, the debate over coal development has centered on incomplete and inaccurate data. The factual information contained in the research literature needed to be digested and recapitulated in terms that those individuals not acquainted with scientific jargon could understand. The purpose of the grant program, as outlined in the objectives, was to provide through public forums factual knowledge of coal development in North Dakota.

The public forums commenced on October 20-21, 1975 in Bismarck, North Dakota when the Tri-College Center for Environmental Studies participated in a program which brought together industrial representatives, political officials, and environmental individuals and groups. This conference was a joint effort sponsored by Tri-College Center for Environmental Studies and several departments of North Dakota State University, including Economics, Transportation Institute and the Water Research Institute.

On April 25, 26, and 27, 1976 a series of meetings were held in New England and Dickinson, North Dakota. These meetings included the audio-visual presentations as developed by the Center for Environmental Studies. The purpose of these forums was to present the compiled information to the citizens at the local levels.

The second objective, an audio-visual presentation of the socio-economic and environmental impacts of coal development, was completed prior to the public presentations.

Project Success:

The measurement of the success of this project can only be derived indirectly; a sociological instrument was neither designed nor intended for this project due to the nature of the objectives. The desirability of the program is attested to by the readiness of small towns and local citizen groups to invite and accept Center for Environmental Study presentation of the subject matter even though coal development has received constant attention at the local level. Also, requests for the completed audio-visual series have been received from a number of schools and organizations including the State Film Library.

Goals and Conceptual Validity:

The originally established goals and concepts remain valid. The implementation of the program, however, was limited by the resources allotted under the terms of the grant. It became apparent during the study and preparation phase that objective number three, a reference center, would have to be eliminated. The goal remained to provide educational materials and disseminate information more directly to the public.

A recent survey, conducted in July 1976 by the North Dakota State Planning Division, shows that over 70% of the population consider the conservation of natural resources and the protection of the natural environment as their first and second goal; this listing or prioritizing occurred in a list including jobs and energy development. The fact remains that environmental quality and the achievement of that goal through environmental education must be considered of paramount importance to the target groups.

Unusual Features and Educational Strategies:

The uniqueness of this project has been to implement those strategies which often have worked and which become lost in the continuing search for innovation; North Dakota remains unique in the sense that the people don't have to be offered flashy slogans or gimmicks. The mid-western ethic allows for the direct method of education through conversation and explanation followed by questioning and discussion. This methodology was expressly chosen on this basis and for these reasons.

Organizational Collaborations:

The Center for Environmental Studies collaborated with a number of groups to implement the programs, a few of which will be named here for purposes of illustration. The help of these groups in establishing meeting times and places and developing local publicity was required for the success of the program. Those groups include: North Dakota League of Women Voters, The Bad Lands Environmental Association, The United Plainsmen, The Farmer's Union, and the New England Rotary Club.

Data Collection and Evaluation:

No data were to be collected under the objectives or goals of the program.

---David Givers
October 1976

BURLINGTON DAM DEBATE

Dr. Clark Markell, Director, Environmental Education Project, Minot State College, Minot, North Dakota 58701; (701)852-3100, Ext. 350.

Under the provisions of a U.S. Office of Education Environmental Education Resource Development grant, Minot State has produced a simulation game called the "Burlington Dam Debate." Simulation is an educational technique in which students are assigned "roles" in an artificial situation, and asked to do the appropriate research and critical thinking necessary to enact their role. Unlike many environmental education curriculum materials which emphasize issues in other areas of the country, this project focuses on the social, technical and environmental aspects of flooding and flood control along the Souris river system located in the Northern Great Plains.

The Simulated Situation:

The Congress of the United States is faced with proposed legislation to eliminate flooding problems along the Souris River. Large sums of money are involved and Congressmen are under pressure from several interest groups. The decision is made to set up a joint Congressional Committee to examine the various alternatives. At the first meeting of the joint committee in Washington, it becomes apparent that several members have never visited the Northern Great Plains and many know very little about local attitudes, climate or geography. For that reason the decision is made to hold a Congressional hearing at Burlington, North Dakota. The town hall is reserved and witnesses representing several points of view are called to testify.

The Materials:

Each set is packaged in a 10x12 inch firm box and contains the following published materials:

A. Seven Profile Cards: Seven four-page folders containing text, pictures and cartoons are used to summarize the views of each "witness." Witnesses include:

    1. A Local Mayor
    2. President of the "Friends of the Valley Association"
    3. Regional Director of the Army Corps of Engineers
    4. A professor of ecology
    5. Canadian citizens from Saskatchewan and Manitoba
    6. Flood plain residents
    7. A farmer living upstream from the proposed dam site

B. One Resource Book: A 20-page newspaper has been "published" for use as a resource by any students wishing to augment testimony or to prepare testimony for new witnesses.

C. Name Tags: These are suitable for propping up in front of a panelist sitting at a table.

D. Teachers Guide: This contains suggested rules and procedures to follow. Considerable space is devoted to a discussion of how teachers and students can design a new simulation about other important local issues.

E. Audience Profiles: Roles have been developed for audience people in the simulated hearing. Characters range from local youth and elderly farmers to news media representatives.

---Clark Markell
October 1976

ERIC DOCUMENT:

Western North Dakota High School Senior Profiles. ED 108 873

COOPERATIVE ENVIRONMENTAL EDUCATION PROGRAM

Dr. William B. Jackson, Director: Ms. Judith A. DuShane, Coordinator; Environmental Studies Center, Bowling Green State University, Bowling Green, Ohio 43403; (419)372-0207.

Through the Environmental Studies Center, a Cooperative Environmental Education Center is operating that has the following functions:

1. To provide learning experiences for teachers to familiarize them with the meaning, techniques, and tools of environmental education. This could include seminars, workshops, in-service programs, or curriculum assistance.

2. To aid teachers in increasing the number of environmental education activities available to their students. This could include planning assistance, materials loan, consulting relationships, and resource identification for everything from a field experience or land lab development to a mini-course or a complete curriculum re-evaluation involving students, teachers, administrators, and community residents.

3. To link teachers with professional help in their areas of interest and concern. This could include consultants from the cooperating organizations, business, industry, local government, or university personnel.

4. To assist teachers in locating needed resources. This could include games and simulations, field trip information, audio-visual and mass-media materials, references, and curriculum guides.

5. To foster communication among public school teachers and university personnel in order to share successful educational activities, produce a multiplier effect, and improve the quality of education for

students. One communication link is the free newsletter, "Eco-Centric," which is published bi-monthly.

In the 1975-1976 school year CEEC was funded by a grant from the Ohio Department of Education. The final report is available from the Environmental Studies Center. Several workshops, resource sessions, and consultant services were provided through CEEC. Future plans include facilitation of interdisciplinary courses and emphasis on energy and population problems.

---Judith A. DuShane
October 1976

MOUND CITY GROUP NATIONAL MONUMENT

Fred J. Fagergren, Superintendent, Mound City Group National Monument,
Route 1, Box 1, Chillicothe, Ohio 45601; (614)774-1125.

The establishment of a NESA at Mound City Group National Monument has been an on-going project for the past several years. Essentially the program has been operative since 1974. Only recently, however, has application for official NESA designation been made. Following is a report of current study area activities.

Overall Objectives:

1. To rediscover the environment through sensory awareness.
2. To develop an understanding of the relativity of all things comprising the environment.
3. To create a sense of responsibility for the environment.

Specific Objectives:

Mound City Group National Monument preserves 23 burial mounds constructed by the prehistoric Hopewell Indians between 300 BC and AD 600. Because of the many environmental changes that have occurred in this area since that time the area provides an excellent opportunity for study groups to compare the resource use of primitive society to that of modern man.

Target Audience:

Although the Mound City Environmental Study Area tends to attract primarily elementary-age school groups, use of the study area is not restricted to any specific group nor to any specific field of interest.

Methodologies:

The environmental education program is designed to provide necessary tools to the nearby educational community. A study manual containing sample activities which are easily adaptable for a variety of age groups is available. In addition, a variety of equipment and publications are available on a loan basis. The Park staff serves as a resource but does not generally become involved with individual study groups on an active basis. It is believed that educators should develop and conduct their individual group programs.

Materials Produced:

62-page activity manual with bibliography and resource list.

Project/Program Evaluation:

Due to economic restrictions area groups have been able to use the study area only on a very limited basis. The chief problem seems to be providing for the transportation of students to the site. Those who have made use of the facility have responded enthusiastically. Members of the Park staff have and will continue to make the benefits of this program known to area teachers via workshops and meetings. When official NESA designation has been established, it is hoped that the area will become more well known and thereby receive additional use.

---Fred J. Fagergren
December 1976

HILLSIDE PROGRAM AND REPORTS

The Cincinnati Institute, 2090 Carew Tower, Cincinnati, Ohio 45202.

This program was initiated in 1972 and was made possible by a grant from the Architecture and Environmental Arts Program of the National Endowment for the Arts under its City Edges program, by contributions and grants from concerned Cincinnati citizens, businesses and foundations, and by contracts with the City Planning Commission and Department of Urban Development of the City of Cincinnati.

A special newspaper supplement (#9 below) was further funded by a grant under the Environmental Education Act from the Office of Education, Department of Health, Education and Welfare, a grant from Scripps-Howard Newspapers, and donated services from the University of Cincinnati and The Cincinnati Post.

Reports available are:

1. The Effect of Aesthetic Considerations on the Validity of Zoning Ordinances; The Status of Aesthetic Land Use Controls in Ohio by Robert E. Manley and Timothy A. Fischer; $3.50.
2. Environmental Quality Protection Regulations for the City of Cincinnati: A Preliminary Strategy Report by Robert E. Manley; $3.50.
3. Hillside Studies and Legislation Across the United States by J. A. Chewning; $5.00.
4. The Visual Importance of Cincinnati's Hillsides by Hayden B. May and Samuel V. Noe, Jr; $3.50.
5. Outline of a System of Environmental Protection Zoning Ordinances for the City of Cincinnati; $3.50.
6. Landslide-Prone Bedrock Hillsides Within the City of Cincinnati, a map (48" x 74") prepared by James E. Hough and Associates and Robert W. Fleming; $50.00.
7. Summaries - Hillsides Reports 1-6; $3.50.
8. Cincinnati Hillsides Development Guidelines, containing the principles and guidelines for development within Hillside Environmental Quality Zoning Districts; $3.50.
9. A Topography of the Mind: The Meaning of Cincinnati Hillsides, a special newspaper supplement documenting the perceptions and values of the citizens; $1.00.

In the Spring of 1977, it is expected that a research report will be available describing the results of this publication upon public awareness and action.

As of October 1976, the City Planning Commission is preparing an explanatory report on Environmental Quality Zoning. It is expected that this report will be available from that office by early 1977.

None of these reports necessarily reflects the position or policy of any Federal agency and no U.S. Government endorsement should be inferred.

(October 1976)

YOU AND THE ENVIRONMENT

Dennis L. Harvey, Coordinator; You and the Environment, Educational Research Council of America, Rockefeller Building, Cleveland, Ohio 44113; (216)696-8222.

You and the Environment: An Investigative Approach (1976) is a major revision of Man and the Environment (1974). This is a one-year junior high school science program that utilizes a variety of content and learning methods that are relevant and appealing to young people. The primary goals of the program are still to develop the students' abilities to investigate their environment and develop their own informed perspectives on environmental problems. The program materials have been developed and tested with the help of approximately eighty teachers and their students.

You and the Environment embodies several improvements over its predecessor. These include:

1. More investigations of the students' own environment.
2. Modifications of existing investigations to improve classroom management.
3. Exclusive use of the metric system in the program as well as an appendix to help students understand the system.
4. Student performance objectives now listed in the student text.
5. A new emphasis in many of the investigations on energy use and its affect on the environment.
6. An expanded and more helpful teacher's edition.
7. A career opportunities appendix relevant to topics treated in the program.

You and the Environment consists of twenty-four topics grouped into four units:

I. Investigating living things

II. The nvironment affects living things

III. Living things affect each other

IV. People affect the evironment

At the beginning of each topic, students are given performance objectives. At the end of each topic, there is a series of items that students may use to check their progress toward these objectives. Answers to these items are now separated from the items into an appendix. An additional program for testing students is also available. Within the program, there are four investigations that use the following simulations and games: The Redwood Controversy, The Mouse and the Maze, The Planet Management Game, and The Pollution Game. Commercial publications and distribution of all course materials is handled by the Houghton Mifflin Company, One Beacon Street, Boston, Massachusetts 02107.

---Dennis L. Harvey
October 1976

1973 DIRECTORY REFERENCE: pp. 469-470

1975 DIRECTORY REFERENCE: p. 90

INTERNATIONAL FIELD STUDIES

Dr. Walter B. Bohl, Executive Director, Offices at Capital University, 2199 E. Main Street, Columbus, Ohio 43209; (614)236-7179 or (614)236-6697.

Objectives: (a) Exclusively for scientific and educational purposes; (b) To provide opportunities for students to learn about their environment, in all disciplines, through direct field experiences; to provide the structure for developing an intensive field study program with competent leadership; to promote educational and scientific activities through direct field experiences; to cooperate with school systems so that students may receive academic credit.

Officers: Executive Director, Walter B. Bohl; Operations Coordinator, Ruth G. Brown; Research and Development, Carol V. Bergmann; Equipment Coordinator, Craig C. Kramer. A Board of Advisors composed of eleven to fifteen educators develops policies and directions for IFS.

Target Audience: Our target audience includes students from Junior high school through continuing education. Those who can care for themselves in the field. Young adults through adults.

Methodologies: Our method uses hands-on, experiential education for academic credit.

Since we are experience-oriented, we do not produce non-experience materials for distribution. We can provide any or all components of extended field study including transportation, lodging, insurances, etc. The field studies are totally supported by the student participants. I.F.S. can transport, by our own bus fleet or our aircraft to and from any study site. Our largest single project involves a Field Station and associated campsite on Andros Island, Bahamas. We are currently developing a new study site in Jamaica and propose other U.S. and Caribbean sites.

Below is a list of schools, universitites, and colleges utilizing the Andros Field Station during the 1976-1977 season:

Winter 1976-1977

1. Bucks County Community College, Newtown, Pa.
2. Wittenberg University, Springfield, Ohio
3. Rio Grande College, Rio Grande, Ohio
4. The Ohio State University, Columbus, Ohio
5. Bexley High School, Bexley, Ohio
6. Miami-Trace High School, Washington Court House, Ohio
7. Thornville Public Schools, Thornville, Ohio
8. J. O. Johnson High School, Huntsville, Alabama.
9. University of Maine, Farmington, Maine
10. University of Boston, Boston, Mass.
11. DePauw University, Greencastle, Indiana
12. Capital University, Columbus, Ohio
13. Thomas Cortland Community College, Dryden, New York
14. Fairchild Tropical Gardens, Miami, Florida
15. Parkersburg Community College, Parkersburg, West Virginia

Spring 1977

1. Parkersburg Community College, Parkersburg, West Virginia
2. Hathaway-Brown High School, Cleveland, Ohio
3. J. O. Johnson High School, Huntsville, Alabama
4. Ashland College, Ashland, Ohio
5. Columbus School for Girls, Columbus, Ohio
6. Butler University, Indianapolis, Indiana
7. Worthington High School, Worthington, Ohio
8. Newark High School, Newark, Ohio
9. Andros Club, Mansfield, Ohio
10. University of Wisconsin, Platteville, Wisconsin
11. Mount Vernon High School, Mount Vernon, Ohio
12. St. Augustine High School, Lakewood, Ohio
13. Columbus Public Schools, Columbus, Ohio
14. Columbia College, Columbia, South Carolina
15. University of Iowa, Iowa City, Iowa

Summer 1977

1. Celina High School, Celina, Ohio
2. Hocking Technical College, Chillicothe, Ohio
3. Lima-Shawnee High School, Lima, Ohio
4. Delphos High School, Delphos, Ohio
5. Westland High School, Grove City, Ohio
6. Westfall High School, Circleville, Ohio
7. Ashland College, Ashland, Ohio
8. Baruck Institute, University of South Carolina, Columbia, S.C.
9. Arlington High School, Arlington, Ohio
10. Dublin High School, Dublin, Ohio
11. Whitehall High School, Whitehall, Ohio
12. Center of Science and Industry, Columbus, Ohio

13. Westerville Public Schools, Westerville, Ohio
14. Brunswick Community College, Brunswick, Georgia
15. Andros Club, Mansfield, Ohio

--- Walter B. Bohl
October 1976

1973 DIRECTORY REFERENCE: pp. 471-472

1975 DIRECTORY REFERENCE: pp. 90-91

ERIC DOCUMENT:

International Field Studies 1973. A Report to the Bahamiam Government.
ED 086 510

MOHICAN SCHOOL IN THE OUT-OF-DOORS, INC.

Ronald Reed, Director; Mansfield School in the Out-Of-Doors, Route #2,
Box 287, Loudonville, Ohio 44842; (419)994-3201.

The Mohican School traces its history back to 1961 and an experiment in outdoor education by Madison Local Schools in Richland County. In 1964, a county committee was formed to expand the Madison program to include all the county school districts. In 1965, the project was given a three-year federal grant. In the summer of 1969 the grant period ended.

The Mohican School in the Out-of-Doors was approved under Title III of the Elementary and Secondary Education Act of 1965. Beginning in 1965 the program was administered by the Springfield Local Board of Education which made the federal application, received the funds and spent the funds according to a budget which had been established by the Mohican Executive Committee and approved by Washington.

When the grant period ended in 1969 the participating schools each sent their share of the operating expenses to the Springfield Board of Education which continued to administer the program until 1971.

There were twelve school districts participating in 1966-67, sixteen in 1968-69 and over twenty in 1972-73. Approximately 2800 students participated in the program during the 1972-73 school year, and about 3026 students attended in 1974-75. The school also serves special education students, conducts a teacher workshop and a follow-up post school year workshop for elementary age students plus a college workshop in cooperation with Capital University in Columbus. Well over 28,000 students had participated by the end of 1975-76.

The school serves mostly 5th, 6th, 7th graders and special education students. Most of the students attend five days and four nights. Some half-week sessions are also conducted. Pre-schoolers from a Child Care Center have also attended sessions.

An executive committee of representatives from all participating districts has always advised the Mohican staff. This committee is considered the governing body of the school. This committee sets policy in the areas of hiring of staff, curriculum, personnel policies, budget and scheduling. The executive committee works closely with the Judson Hills Camp Committee which is responsible for the facilities.

In 1974 the Executive Committee became the Board of Directors as the school became a non-profit corporation. A small group of the Board is now called the Executive Committee and is made up of the officers of the Board. A fund raising campaign was started in 1974 to supplement the budget.

Permanent committees in the following fields have been established: personnel, curriculum, dissemination, evaluation, by-laws, staff, student assignment, and future planning. Other committees are established as the need arises.

A permanent staff of three full-time and six part-time people under the supervision of Mr. Ronald Reed, Project Director, operate the school program. The staff is increased and decreased as the weekly total of students fluctuates. All members of this staff have been teachers in other school systems and have had training and experience in outdoor education. This staff is assisted by six college-age dormitory staff. Ashland College, Capital University, Bluffton College and The Ohio State University Mansfield Branch have cooperated with Mohican by sending students for educational experiences. Many students have received student teaching credit at Mohican.

The Mohican staff provides dormitory supervision at night for participating schools.

Classroom teachers from participating school districts may teach with the Mohican staff during sessions. For three years Mohican was a part of the San Francisco State College Extension program and offered credit to teachers when they taught and/or attended adult workshops.

The meals are prepared by cooks supervised by the camp management. Meals are served from Monday evening through Friday noon each week.

The Mohican Staff has developed several publications which are constantly under change and revision. Anybody interested in purchasing some of these publications should write the school for more information.

Transportation to the school, which is located 25 miles southeast of Mansfield, Ohio, is provided by each participating board of education for their own students by bus.

The school facilities that are used are owned by Judson Hills Baptist Convention of Ohio. The facilities contain 260 acres of ground on which is located a main lodge which serves as a dining center and other buildings for classrooms, etc. An office and storage facilities are provided for year-round use. Winterized dorms for girls and boys have been constructed, which contain a sleeping area, toilets, and lavatories. Showering facilities are available in each dorm. The camp operates under rules and regulations set down by the Ashland County Board of Health and the American Camping Association.

The curriculum provides for all subjects in the classroom to move to an outdoor setting for first-hand learning situations. The studies include topics related to the problems of our natural environment.

We feel that in addition to taking part, these children learn to live together, work together in a community they helped create. There is an opportunity for teachers and students to learn to better know and understand each other.

We insist that classroom teachers of the students participate in the program at the outdoor school. So the program becomes an extension of the "indoor" classroom. We encourage them to stay at least one night and most stay every night. Separate sleeping facilities are available for the teachers.

---Ronald Reed
October 1976

1973 DIRECTORY REFERENCE: pp. 477-479

1975 DIRECTORY REFERENCE: p. 92

ERIC DOCUMENTS:

1. Resident Outdoor Education. A Planning Guide. ED 092 388
2. The Pioneer Student Textbook. Mohican School in the Out-of-Doors. ED 111 554

MAPLE HEIGHTS ENVIRONMENTAL EDUCATION PROGRAM

M. Jane Toth, Project Director, Maple Heights City School District, 5500 Clement Drive, Maple Heights, Ohio 44137; (216)587-3200.

This program has been funded under Environmental Education Act for 1976-77, with a grant of $20,678. Participating institutions are: Maple Heights Senior High School, Maple Heights East Junior High School, and Maple Heights West Junior High School.

Major Goals and Objectives:

The purposes of the program can be broadly stated as follows:

1. To provide students with an overview of real environmental problems in their community and their world.

2. To provide students with practical experiences in dealing with the complexities of environmental problems and in planning and carrying out problem-solving activities related to selected problems in their immediate environment.

3. To provide students with processes and methods they can use in dealing with the problems and situations they will meet in their jobs and everyday lives.

4. To help the Maple Heights Secondary Schools become a viable source for the local community.

Major Activities:

Students in grades 7-12 and their teachers will be participating in local community problem-solving activities conducted as a part of their regular classes. These activities consist of long and short term projects which fall into two categories: those designed by the program coordinators, and those designed by teachers.

The role of the coordinator is that of catalyst and resource person; coordinator-designed projects therefore serve as a means of in-service education for the teachers involved in them.

Most of the teacher-developed projects will occur during the second semester of the school year. The coordinators will contact various teachers in their buildings to determine what types of projects they are planning for their classes that could fit into the Environmental Education Program. Coordinators will also discuss with teachers the possibility of designing their own projects or participating with their classes in projects designed by other teachers. This last point stresses the idea that the Environmental Education Program must be interdisciplinary.

Evaluation:

Evaluation of the program will be conducted through the following methods:

1. Individual interviews with the teachers.

2. Questionnaires administered to teachers, students, and community leaders involved in the project.

3. Statistical analyses of the data gathered from the interviews and questionnaires.

Dissemination:

The final report will be printed and copies made for all teachers in the school district and for community leaders. A copy of the final report will be given to each of the school systems in the greater Cleveland area, and additional printed copies will be available for school systems and organizations expressing an interest in our program.

---M. Jane Toth
October 1976

ENVIRONMENTAL ECONOMIC LITERACY AND MATERIALS DEVELOPMENT INSTITUTE

Dr. Frank S. Wert, Assistant Professor of Economics, Central State University, 100 N. University Drive, Edmond, Oklahoma 73034.

The theme of the project, funded under P.L. 93-278, is the interrelations of man, ecology, and technology. The purpose of the project is to upgrade the quality of environmental instruction at the level of grades 7-12. The project will enhance students' and teachers' understanding of the impact of scientific and technological progress on their work and personal lives, thereby fostering insights into public issues which involve the interface of the environment, science, and technology.

The process of developing new curriculum materials by infusing economic and science concepts which are implemented in the classrooms will enable the teachers to apply more effectively economic tools of analysis to environmental issues.

Over a two-year period, Central State University in Edmond, Oklahoma will conduct two 2-week Summer Institutes for 24 secondary science and social studies teachers. In the first 2-week Institute, participants will develop tentative environmental education curriculum materials to be implemented in their respective schools during the 1976-77 school year.

In the second 2-week Institute, participants will revise and upgrade the previously developed materials that have been utilized and tested in the classrooms. The finalized materials will be disseminated and implemented throughout Oklahoma school systems by the Oklahoma Council on Economic Education and the Joint Council on Economic Education.

The Institutes will be staffed by economics, natural resources, and curriculum development personnel at Central State University.

---Frank S. Wert
October 1976

OUTDOOR SCHOOL EDUCATION PROGRAM

Jimmie Pigg, Moore Public Schools, 300 North Eastern, Moore, Oklahoma 73160.

Overall Purpose:

To provide the boys and girls of the Moore School District with a better understanding of their environment in order that they may help to solve future problems in this area.

Specific Objectives:

To develop through activities an attitude that would enable the students to understand and be able in the future to take part in outdoor activities; be able to enjoy and understand the role of the natural environment in their lives; to develop a love and respect for all living things; to provide the high school students who act as the student teachers with an understanding of the need for and importance of education in solving of the environmental problems.

Target Audiences:

Two-day school for all fifth grade students; one-day outdoor school for sixth grade students; a half-day training problem for all third grade students. In addition we use about 125 students as teacher-aids and these students receive two days of training.

Materials Produced:

Activities are produced for local use. In addition, we have developed a slide program for our teachers to use.

Funding:

Only local funds are used.

Evaluation:

By teacher feedback, student feedback and in class evaluations.

Plans for the Future:

Continue the present program and include a middle school program.

---Jimmie Pigg
October 1976

1973 DIRECTORY REFERENCE: pp. 489-490

1975 DIRECTORY REFERENCE: p. 97

ENERGY AND MAN'S ENVIRONMENT, INC.

Dr. John C. Jones, President; 0224 Southwest Hamilton, Suite 301,
Portland, Oregon 97201; (503)226-7131.

Energy and Man's Environment (EME) is a nonprofit corporation serving educators in the western United States. EME initiates and supports balanced and objective curriculum development and teacher training programs designed to achieve energy and environmental literacy.

EME was initiated in 1972 by the Public Power Council of the Northwest Public Power Association in cooperation with principal state educational agencies in Washington, Oregon and Idaho. In 1973, Northwest Electric Light and Power Association, representing all regional investor-owned utilities, joined the consortium, thus doubling the financial base and strengthening regional program potential. EME is endorsed and supported by the State Departments of Education in eight western states--Washington, Oregon, Montana, Wyoming, Utah, Idaho, Colorado and Nevada. In each state, EME provides a wide spectrum of educational services.

Headquarters for EME is in Portland, Oregon. Support for field operations is provided by the Director of Regional Operations centered in Salt Lake City, Utah. Individual state programs are administered by highly qualified State Coordinators. Each is an acknowledged educational leader with special skills in classroom instruction, program development and implementation. Each coordinator develops and manages energy education programs within his/her state with the assistance of a carefully selected Energy Education Advisory Committee. State committees include broad representation from industry, education, government and the private sector to insure programming strength and objectivity.

Energy and Man's Environment offers educators a wide range of unique energy and energy-related environmental education programs. Each in-service or curriculum development activity is "custom tailored" to meet the specific needs and interests of the participants. EME focus is multidisciplinary and K-12. Programs include:

1. Conferences: provide in-depth analysis of major global, national and regional energy issues. Each conference provides insight into current and projected energy systems and their impacts; inspects herent social, political, economic and philosophic issues; initiates dialogue with experts and resource persons; and develops insight into the educational implications of the energy dilemma.

2. Workshops: prepare teachers of all disciplines and grade levels to introduce energy concepts into their existing instructional programs. EME workshops focus on both content and process aspects of energy education. With the cooperation of school district administrators and teachers, each workshop is "custom tailored" to meet the special needs and interests of the participants and their students.

3. Seminars: focus on examination of selected energy topics with content specialists. Each seminar is prepared to meet special participant information needs.

4. Speakers: from all disciplines are available to educators throughout the EME region. Requests are initiated through the respective State Coordinators or the EME Portland office.

5. Special Programs: meet unusual energy-related educational needs. Special programs have been designed for school administrators, school plant and facilities managers, transportation supervisors, debate teachers and school counselors. Local utilities, universities, research agencies and other energy management groups are available to provide specific resources, materials, and speakers to those educators with special needs.

Energy and Man's Environment conducts an ambitious reference and instructional materials development effort. Currently available resources include a seven-part Energy Activity Guide, Energy/Environmental Glossary, Energy Films Index, Learning Activity Packages, Energy Calendar for classroom use, Annotated Bibliography of Key Energy/Conservation Education Resources and professional papers. These materials are available without cost to educators participating in EME developmental programs within the service region, and at cost to other educators.

---John C. Jones
December 1976

1975 DIRECTORY REFERENCE: p. 268.

RECYCLING INFORMATION OFFICE

Loren Kramer, Director; Jane Crease, Public Information Representative;
Department of Environmental Quality, Recycling Information Office, 1234
S.W. Morrison Street, Portland, Oregon 97205; (503)229-5119.

The Recycling Information Office of the Oregon Department of Environmental Quality works daily to inform the public why, how, what and where to recycle. Part of that process includes work with schools and educators. The office has materials available which Oregon schools use.

The 1975 Legislature established by resolution state policy that Oregon public educational institutions should act to make resource conservation an integral part of their physical operations and curriculum by teaching about recycling, by reducing school waste, by recovering marketable school wastes, and by purchasing recycled products.

To implement that policy the DEQ Recycling Information Office began to work cooperatively with the Oregon Department of Education and Oregon Recyclers.

In January 1976 a workshop was held to discuss the Legislative resolution and to determine how best to implement it. A letter went to all state schools from the Department of Education informing them of the resolution and asking for participation. Shortly thereafter the Environmental Education Association of Oregon, a private organization, decided to fund a curriculum development project. The project was co-sponsored by the DEQ and the Department of Education. (EEAO Contact: President Mike Vaughn, EEAO, P.O. Box 5484, Eugene, OR 97405; DEQ Recycling Office Contact: Jane Cease, 1234 S.W. Morrison, Portland, OR 97205; Department of Education Contact: Claudia McDuffie, Environmental Education, Department of Education, 942 Lancaster Drive N.E., Salem, OR 97310.)

At a May 1976 workshop educators and recyclers reviewed the first draft of "Reduction, Re-Use and Recycling: The Three Rs to the Best Use of Earth's Finite Resources," a curriculum guide to facilitate infusion of the three concepts into school curriculum, grades K-12.

EEAO members and Recycling Information Office staff edited the curriculum packet and produced a working draft. This is being reviewed and tested in Oregon classrooms during the 1976-77 school year. After that time the EEAO will determine format for a salable curriculum guide.

---Jane Cease
October 1976

1973 DIRECTORY REFERENCE: pp. 508-510

1975 DIRECTORY REFERENCE: pp. 98-99

ERIC DOCUMENT:

A Guide to Running a Recycling Project. Second Edition. ED 107 479

MULTNOMAH OUTDOOR SCHOOL

Warren C. Gilfillan, Director of Outdoor Education; Multnomah County Intermediate Education District, 220 S. E. 102nd, P.O. Box 16657, Portland, Oregon 97216; (503)255-1841.

Increasing populations are crowding the available land in many states in our nation. There has been misuse of our natural resources that is making daily news leadlines. The result is a great national concern that our people be taught to use wisely the land and resources that remain.

In Oregon, populations are still comparatively small. With the overwhelming portion of its economy deriving from forest products, farming, tourism, and fishing, it is obvious the State of Oregon relies heavily on its natural resources. It is also obvious that the extent to which sixth grade students today learn to understand and conserve these resources will largely determine their economic security and standard of living in the future.

To that end the Multnomah Outdoor School is strictly an education program, conducted in the out-of-doors where nature may be observed firsthand. It is primarily dedicated to teaching sixth graders the fundamentals of how nature works and man's place in the natural environment.

The basic philosophy of Outdoor Education is, simply, leaving the classroom to teach those things in the out-of-doors which may best be taught there. In this sense the "outdoors" could mean the most populated urban area or the most isolated wilderness.

Environmental Education is a much broader concept wherein man reaches for answers that will allow his survival on this planet. It is the "Big Picture". It deals with teaching about the total environment as it affects man where he lives.

Outdoor School, in contrast, generally means taking the student away from where he lives to a totally new piece of geography. The purpose is to supply a fresh, relatively untrammeled environment where the student can study the natural world without the drastic alterations imposed by man. Only in this setting where all the elements of the natural world exist side-by-side can the students really understand the essential interrelationship of these elements. Only here can he see that if man affects one element, he affects all others. The study of ecology makes sense!

Unlike the traditional classroom, the Outdoor School student is surrounded by what he studies and can see, feel, hear, smell, and even taste the realities of the natural world around him. He learns with all his senses. Outdoor School is not an attempt to add new subject matter to the curriculum. Rather, it provides an ideal environment for teaching certain areas of study which suffer in the comparatively sterile atmosphere of the indoor classroom.

While emphasis is placed on natural science and "ecology", students continue to develop their knowledge and skills in social studies, language arts, mathematics, art, music, physical education and recreation. The difference is that they use these skills in investigating, measuring, and reporting discoveries in nature and in the experiences they share with others in the out-of-doors. These studies make sense because they have practical application in a real, live situation.

The resident, week-long, coed Outdoor School for sixth grade students is the type of program currently pursued by Multnomah Outdoor Education.

Camps owned by youth-serving organizations are leased as sites for the Outdoor School. These supply ready-made facilities which have already been designed to house and feed young people in relative comfort. Being able to live close to their outdoor classroom offers students endless educational opportunities difficult to obtain elsewhere. Even though a camp is used as the site for the Outdoor School, it is important to understand that this experience is not a recreational camping trip. Outdoor School is a serious, education-centered program where students attend school 24-hours-a-day in a beautiful, natural setting. But, rather than disregard the camp atmosphere, all of the social living advantages of "camp" are used to strengthen the program. The "camp" climate is a bonus that is not wasted.

One of the outstanding advantages of Outdoor School comes from the new and close relationship that develops between teacher and student as they explore nature and share discoveries together. Almost universally, teachers who have accompanied classes state, "I never really knew my students until we spent a week together at the Outdoor School". Teachers find that students who are poor achievers in the modern, reading-oriented classroom, suddenly come to life at the Outdoor School and experience success because of the direct-contact approach to outdoor studies. Being able to compete once more on an equal basis with others has made many a "slow" student an enthusiastic performer. Better students forfeit nothing, but enjoy the fresh approach to learning in the pleasurable Outdoor School atmosphere.

To the average student to whom teacher may be a rather distant figure, the Outdoor School is a great revelation. Here students find teacher delving barehanded into soil, rotten log, or water's edge along with students, sharing discoveries and learning with them. This new relationship cannot help but increase teacher's effectiveness in all areas the rest of the school year.

The resident Outdoor School has many advantages over short-term Outdoor Education efforts. For one, it provides a longer, more continuous period of time in which to correlate the study of natural resources with the total school curriculum. Sixth graders and their teachers experience an uninterrupted week in which they can live, work and play as well as learn together as an intact class.

The Outdoor School week starts with four sixth grade classes arriving by bus at each Outdoor School site on a Sunday afternoon. A cursory medical check is followed by an orientation to the site and its rules.

Staff is then introduced, cabin groupings formed and students settled into their living quarters and into the Outdoor School routine. Monday, Tuesday, Wednesday and Thursday constitute four full days devoted to pure discovery and instruction.

Every class spends one full day in round robin fashion in the study of each of four natural resource study areas, Water, Soil, Plants, and Animals. To assure maximum use of five hours of daily outdoor study time the Outdoor School supplies a staff of four highly qualified specialists, one each in Water, Soil, Plant, and Animal resource studies.

Working with a new class each day, each Resource Specialist appraises each teacher's desired degree of involvement, the teacher's knowledge of the resource subject, and the level of class preparation. The evening before, a tailor-made lesson plan may then be cooperatively developed which allows the Resource Specialist to either supplement a particularly well-informed teacher or to carry the major portion of the instruction.

Morning studies generally center around students exploring their environment within the framework of the resource area under study for that day. Given some fundamentals by their instructor they soon form into small discovery groups led by individual members of the teaching team. In addition to the teacher and Resource Specialist, the teaching team comprises a Senior Counselor and four Junior Counselors, or a total of seven people for each class. Thus, with a 1 to 4 student-teacher ratio, the small group discovery approach to learning becomes a reality at the Outdoor School.

Every teacher who takes a class to the Outdoor School attends a day-long workshop several weeks before the opening of the school session. At this time teachers who are not biologically oriented learn skills in each resource area so they may become informed and participating members of the Outdoor School teaching team. Junior Counselors (high school age cabin leaders) also take a part of their training at a two-day workshop designed to prepare them as discovery leaders in a resource speciality.

Teacher-class evaluation time occurs when class and teacher meet together after the evening meal. Field worksheets are brought up-to-date and the highlights of the day's instruction emphasized. Each teacher has a chance to consolidate the gains in knowledge and give special attention to the slower or to the advanced student.

Because of the resident status and regional nature of this Outdoor School, the social living phase offers an imposing bonus. Unlike the instructional phase where classes are kept intact, living groups are intentionally mixed to include students from diverse areas and walks of life. Two or three students from each of the four classes attending the Outdoor School each week are formed into a new living group of eight to ten students either of boys or of girls. Each group is housed in a separate cabin under the leadership of a topflight high school age person called a Junior Counselor. These outstanding high schoolers stand as idols to sixth graders and they are made especially aware that their conduct is an example to their young followers. The value of this association is profound, inevitably carrying beyond the end of the Outdoor School. Among the sixth graders, comradeship and concern for other students soon develop. Each learns that how he stands with others is measured by his own attitudes and abilities.

A third grouping of students after the instructional and living organizations involves the entire school community when they gather en-masse for eating in the dining hall, for an hour's recreation in the afternoon, or at the evening campfire for singing and skits.

Everyone dines family style in the central dining hall where balanced meals are prepared by experienced cooks. Using the host system, students conform to high standards of etiquette and table manners. Every effort is made to mix students at the tables to provide more opportunity to meet new friends and all staff members.

Vital members of the staff are the Senior Counselors who keep the program and functional portion of the Outdoor School running with enthusiasm. People with experience in youth camping are chosen for the many-sided position. Not only do Senior Counselors serve as instructional assistants to Resource Specialist, but they are the prime movers of the Outdoor School daily schedule. As such they counsel high school people, organize campfire and mealtime programs, lead duty groups and conduct afternoon recreation activities.

Each student is responsible for his own bed, cabin neatness, and personal cleanliness. In addition, each living group is scheduled to do a full round of all other chores necessary to operate the Outdoor School. After first being taught by a Senior Counselor, everyone is scheduled to set tables, serve as table waiter, act as host or hostess, clean tables, carry firewood, clean rest rooms, forecast the day's weather, and raise or lower the flag with ceremony.

Between the end of lunch and the start of afternoon instruction, a quiet time is observed with living groups restricted to their cabins. At this time students are encouraged by their Junior Counselors to write home, practice skits and stunts for the evening campfire, or sing songs---or, near the end of the week, nap.

Though the emphasis is on education at the Outdoor School, an hour-long recreation period is offered each afternoon after classes. Sixth grade students use this time to take part in counselor-supervised, outdoor-oriented activities such as riflery, archery, axe and saw, bait casting, naturecraft, and hiking. Thursday afternoon recreation is devoted to cabin group competition in a field day, featuring recreational as well as academically oriented events.

Each evening after dinner and teacher-class evaluation, the day's activities are climaxed with a campfire program. Depending on weather, these are held around an outdoor bonfire or indoor fireplace. Group singing is supplemented by skits and stunts performed by cabin groups. Campfire programs end on a quiet note with Indian legends or serious songs and an impressive closing. After groups return to their bunks, the sounding of taps brings an end to each full day at the Outdoor School.

One lunch during midweek is declared "cookout time" with each sixth grader, along with his cabin mates and Junior Counselor, cooking his own noon meal over a homemade "hobo stove". Often this inititates a new appreciation of mom's cooking but always a feeling of self-reliance.

Friday morning involves an overview or summary session conducted by the teacher or Resource Specialist. An effort is made at this time to unite all the resource areas into a single ecological package, pointing out the necessary interrelationships of all natural resources. Students are hopefully made to realize that their own futures depend their knowledge of these interrelationships.

After lunch on Friday, the final flag lowering and a simple tree planting ceremony mark the end of Outdoor School. Inside the buses departing for home the tears of students are matched by those of the staff who sing goodbye to their new-found young friends. Only then does it become really obvious that Outdoor School is more than academic in nature. The social learning implications often appear the most important product of Outdoor School.

---W. C. Gilfillan
October 1976

1973 DIRECTORY REFERENCE: pp. 506-507

1975 DIRECTORY REFERENCE: p. 98

LOWER MILFORD OUTDOOR CONSERVATION AND EDUCATION CENTER

John H. Leeser, Lower Milford Elementary School, Southern Lehigh School District, Box 567, Rd#2, Coopersburg, Pennsylvania 18036; (215)965-4095.

The site is located on a piece of land adjoining Lower Milford School. The land contains a forest, shrubs, ferns, a marsh, and a stream, among other things.

Since 1972 the fifth grade classes have been involved with blazing a trail through the center. The students have also researched various plant and tree species, prepared reports and made speeches, and had their speeches tape-recorded. This tape recording coincides with a series of wooden markers identifying various plants and trees along the trail.

All one needs to tour the Lower Milford site is the tape recorder. He simply starts the recorder at the trail's beginning and receives a complete guided tour of the outdoor center by following the tape's instructions.

All work has been done by the students, with the help and guidance of John H. Leeser, fifth grade teacher, and John Yeager, Principal.

(November 1976)

SUMMIT ENVIRONMENTAL STUDY AREA

Allegheny Portage Railroad National Historic Site, P.O. Box 247, Cresson, Pennsylvania 16630; (814)886-8176. James R. Zinck, General Superintendent; S. Paul Okey, Chief of Visitor Services; Terry Anderson, Environmental Education Coordinator.

Objectives:

1. To introduce the student to a total cultural and natural environment, past and present, and help him realize that he is a part of it.
2. To develop in the student an understanding of how man is using or in some cases misusing his resources.
3. To provide an opportunity for the student to work directly in environmental problem solving.
4. To equip the student to be a responsible member of the world that he is shaping and that is shaping him.

Target Audience:

Educators and interested individuals who may wish to use the Allegheny Portage Railroad National Historic Site as an outdoor classroom. All grade levels from Kindergarten to 12th grade are welcome.

Materials Available:

Teacher's Guide to the Summit Environmental Study Area. Special emphasis is on Kindergarten through the sixth grade level.

This site is one of approximately 200 environmental study areas which have been set up by the National Park Service of the U. S. Department of the Interior, designed to support and stimulate environmental education programs in the local school districts.

The current program consists of assisting local schools, conducting classes in environmental education, and offering on-site workshops for teachers interested in becoming more familiar with the area and the environment.

---Terry Anderson
December 1976

BAPTISM CREEK ENVIRONMENTAL STUDY AREA

Hopewell Village National Historic Site, R.D. #1, Box 345, Elverson,
Pennsylvania 19520.

Environmental education at Hopewell Village is concentrated in the Baptism Creek Environmental Study Area. The overall purpose of the area is to provide a setting where a school teacher, with the proper orientation and introduction from the Park staff, can guide students to an understanding of man's interaction with his environment.

There are ten specific objectives of Baptism Creek Environmental Study Area:

1. To provide the opportunity for youth to recognize the interdependencies of the web of life.
2. To confront man with his obligation to respect and respond to the laws of nature.
3. To appreciate the impact of change.
4. To relate the outdoor environment of the study area to the ever increasing urbanized environment.
5. To develop an awareness of little things.
6. To understand the responsibility and thought involved in decision-making.
7. To awaken a curiosity about ways of improving the world around us.
8. To remind man that technology is not the cure for all environmental ills.
9. To instill hope that man can preserve a quality life for future generations.
10. To try to eliminate "it's the other guy" approach in explaining blame for the environmental crisis.

Our program is directed toward fourth, fifth, and sixth graders. An introductory talk about the environmental crisis is presented by a uniformed ranger at the Visitor Center. He also presents the Park Service response to the crisis. The talk is followed by a brief movie, "Children and Trees". The class then proceeas to the study area, and the teacher conducts the tour of the area.

The program is suffering from decreasing use in recent years. The energy crisis, coupled with rising costs in general, have led a number of school systems to eliminate trips to the Park. The Nolde Environmental Education Center is Reading also provides an excellent program to many children who might otherwise come to Hopewell.

Visitors to the Park are encouraged to use the area as a place to hike, photograph nature, see wildlife, and enjoy the outdoors in general. The trail register in the area shows a great deal of use by casual visitors, and several groups of horsemen use the area each year. No changes are planned for the area in the near future.

---Elizabeth E. Disrude
December 1976

ROUND TOPS ENVIRONMENTAL STUDY AREA

John R. Earnst, Superintendent; Gettysburg National Military Park,
Gettysburg, Pennsylvania 17325.

The general purpose of the study area is to provide resources for the interpretation and study of values and relationships between man and his natural, historical and cultural/historical environment, especially as they relate to the Gettysburg area. Round Tops ESA provides a location at which students can apply classroom learning experiences to their actual surroundings.

Round Tops ESA consists of three general areas: Little Round Top, Big Round Top Loop Trail and the Granite "Living History" Farm. Each area emphasizes a different aspect of environmental education. Little Round Top's significance for environmental education is primarily historical. Here instructors can develop programs around the effects of Little Round Top's "environment" on men and events during the fighting of July 2, 1863.

On the Big Round Top Loop Trail instructors can introduce the student to a relatively undisturbed Pennsylvania hardwood forest and its wide variety of plant and animal life. Man and his relationship to his natural environment is the central theme for instruction on this section of the ESA.

The Granite Farm and its programs help to develop in the student an understanding of rural life in mid-19th century America by providing a "complete" farming operation including (1) planted fields; (2) various types of farm animals and programs which interpret contemporary farm life; (3) summer kitchen; and (4) a functional blacksmith shop. Here students can learn of man's attempts to cope with his environment over a century ago, as well as the effects of battle on man and the environment. Groups interested in visiting granite Farm should make reservations by contacting the Park Superintendent. The Granite Farm is available by special reservation, as well as on weekends throughout the spring and fall. The farm is open daily during the summer months. The various areas and programs within Round Tops Environmental Study Area are suitable for all age groups. However the ESA itself was developed with the upper elementary grades in mind.

A Teacher's Guide to the Round Top's ESA is currently nearing completion. This guide will present guidelines and suggested approaches for teachers of 4th, 5th, and 6th grades in trip planning and utilization of the ESA itself. The Teacher's Guide will be available in the spring of 1977, and can be acquired by writing the Park Superintendent.

Two publications are now available which are pertinent to the Round Tops ESA. They are pamphlets entitled "Granite Farm, Face-to-Face With The Past" and "Big Round Top Loop Trail" which is a self-guiding brochure. These publications too are available through the Park Superintendent, or may be picked up at the Granite Farm or Loop Trail.

Completion and distribution of the Teacher's Guide should create a marked increase in ESA interest and visitation. The Teacher's Guide and the brochures are just a part of a continuing process of upgrading the programs and resources of the Round Tops ESA.

---John R. Earnst
December 1976

ENVIRONMENT AND ENERGY

Leroy D. Johnson, Dean and Professor of Chemistry, Lincoln University, Lincoln University, Pennsylvania 19352.

An environmental course, Environment and Energy, has been developed under a P.L. 91-516 grant. We consider the two years of experimentation utilizing experts from the community, county and local area as a valuable experience for the students, community, and the experts who taught and participated in making the program work.

---Leroy D. Johnson
October 1976

1975 DIRECTORY REFERENCE: p. 362

OUTDOOR EDUCATION PROGRAM

Wendell Poppy, Principal; Londonderry Elementary School, Lower Dauphin School District, 260 Schoolhouse Road, Middletown, Pennsylvania 17057; (717)944-9462.

In the past decade, man has suddenly begun to realize the possibility of his own extinction. Without oxygen, food, water, and other natural resources, we earthlings will be unable to survive. Since, according to a national news network, the United States citizenry consumes and wastes more than 50% of the earth's resources, it would seem wise to help children discover the intricate balance of nature and also develop an appreciation for the wide use of its resources.

The Outdoor Education Program at Lower Dauphin School District is a learning experience that utilizes the natural outdoor setting as a laboratory. Children study first hand the natural sciences and the conservation of natural resources.

Our program is a resident type program with the children leaving school on a Monday morning and returning to school on Friday afternoon. There are numerous goals of the Outdoor Education Program. Three of the major objectives are:

1. To provide the children first-hand contact with the principals of natural science. Throughout the program an emphasis is placed on conservation and man's interrelationship with nature. It is hoped that we can gain an appreciation of the beauty of nature and show how serious the problem of polluting our natural environment has become.

2. To provide an opportunity for practical application of knowledge and skills learned in the classroom. This would include the areas of social studies, mathematics, language arts, music, art, and physical education, in addition to science.

3. To provide an opportunity for children to live, plan, work, and share responsibility together. Children are encouraged to become self-reliant in this setting away from home and are expected to practice good citizenship in a democratic community of peers. All children are expected to carry out duties in the cabins, dining hall, and on the camp grounds.

Lower Dauphin School District conducts its Outdoor Education Program at Camp Hebron near Halifax, Pennsylvania. The camp is a church-owned area. The school reserves the camp for a five-day period in the spring of the school year.

Prior to going to camp, extensive planning and preparation are done by the faculty and administration. There is a one day pre-camp orientation for the fifth grade students during the fall of the school year at Camp Hebron. During this time the students become familiar with the facilities and locations of the camp. While at camp for the one-day fall orientation, the students are encouraged to observe the camp with all their senses.

They write down their observations in small notebooks so that they may compare and contrast their fall observations with the new observations of spring. Objects that may show signs of change due to weathering are placed at various locations throughout the camp. The students record where these objects were placed and come back to them in the spring to see how they have changed. It is felt that the fall orientation helps the students to become familiar with the camp so that it is not a strange setting for them in the spring.

During the school year, informational bulletins concerning the planning and preparations being made for camp are sent to the parents. Approximately three weeks before going to camp, a Parent-Student Handbook is compiled by the students and faculty. This handbook explains fully the camp program to the parents and hopefully answers many of their questions. Also provided for the parents, about one week before leaving for camp, is a Parent Orientation Night. It is during this time that slides of previous years at camp are shown to the parents to help them to have an even better understanding of the camp program. After the slide presentation is a question and answer period which proves to be valuable in answering specific questions that parents may have concerning the camp program.

Camp counselors and instructional aides from the Lower Dauphin High School are interviewed by the fifth grade teachers. Upon close examination and discussion, twelve counselors, six girls and six boys, and six instructional aides are chosen to go to camp. It is the counselors' responsibility to be with their cabin group twenty-four hours a day for the week-long camping experience. Their duties range from overseeing their cabin to having the student report on time for instructional period and meals.

The responsibility of the instructional aides is that of helping the staff member to which they have been assigned. Their duties include setting up displays, doing experiments with the students, and working with small groups.

The fifth grade students are divided into twelve groups, six girls' groups, and six boys' groups. The groups range in size from ten to twelve students. Each cabin group is assigned a counselor and cabin. The instructional aides are placed in cabins where it is felt they are needed. The girls cabin loop and the boys cabin loop are located in separate areas of the camp.

The six teachers, the nurse, the cooks, and the student teachers are lodged in a separate cabin that is centrally located in the camp.

The school nurse is at the camp twenty-four hours a day for the total five-day experience. A doctor is also on call during this time.

The menu for the entire week is made by the school's dietician and the head cafeteria cook. The head camp cafeteria cook is in charge of all meals while at camp. She is given assistance by some of the mothers of fifth grade students who volunteer their services for all or part of the week at camp. Four ninth grade home economic girls, who are chosen by their home economic teacher, go along to camp to help in the preparation and serving of the food.

There are six, two-hour instructional periods during the week. Each instructional group attends each instructional period once during the week. An instructional group is made up of one cabin of girls and one cabin of boys. This makes each instructional group range in size from twenty to twenty-four members. During the instructional period the teacher, the instructional aide, and the two counselors are involved in working with the children. This enables the instructional groups to be subdivided into groups of five to six students.

Some instructional areas that are taught at camp are Entomology, Pond and Stream Ecology, Conservation, and Tree Identification, Survival and Outdoor Living, Arts and Crafts, and Geology. Each teacher is in charge of compiling his own unit as it will be used at camp.

Special recreational activities are conducted each evening after meal time. These recreational activities include boating and fishing, horseback riding, a hayride, archery, and physical education. The teachers and counselors who are adept in these areas are placed in charge of each area.

After the recreational period, the evening activity period is held for about an hour and a half. It is during the evening activity period that outside speakers and guests present programs to the students. These include representatives of the Fish and Game Commission, a State Forestry representative, a nature slide presentation, and a square dance.

The theme for one of the evening programs, which extends into the next day, is Pioneer Night. It is during this time that the students get first hand experience at "roughing it." Each student cooks his own evening meal over an outside wood fire that his cabin group has built. After experiencing his own cooking, the students gather around a bonfire where stories are told. When story time is complete, each student unrolls his sleeping bag on the ground and experiences sleeping out in the woods under the stars.

The next morning the students are awakened by reveille shortly after sunrise. They kindle their fires to get them blazing again and begin to cook their breakfasts out in the open.

When breakfast is completed, the students extinguish their fires, roll up their bedrolls, and are ready to climb Peters Mountain. The climb up Peters Mountain is one of the highlights of the camping experience. Once at the top of this mile and a half hike, the students are rewarded with a breath-taking view that they long remember and talk about.

As a follow-up to the camping experience for the parents as well as the students, the school holds a Post-Camp Parent Night. During this time the parents are able to view a slide presentation of their son's or daughter's experience at camp. It is during this time that the teachers can receive helpful feedback as to how the parents and students felt the camp program was operated. This feedback enables the teachers and staff to try to make improvements for future years.

The district provided the funds for this program with a small fee being collected from each student.

---Kenneth B. Allwine
November 1976

SITES FOR ENVIRONMENTAL EDUCATION DEVELOPMENT

Roslyn M. Kahler, Executive Assistant, Northampton County Conservation District, R. D. #4, Nazareth, Pennsylvania 18064; (215)759-0323.

The SEED project Sites for Environmental Education Development ESEA Title III project no. F4-73051 was a regional program to develop environmental awareness. The overall purpose was to develop environmental education sites at a developing state park and local school sites. Teachers-teams from a school were trained and developed environmental education activities. One-hundred-fifty teachers were involved in a series of summer and academic school year workshops. Teachers received six graduate credits from the Pennsylvania State University for participation.

A coordinated program was developed by the Northampton County Conservation District. This effort provided the utilization of the many Federal, State and Local Agencies, The Agricultural Extension Service and Conservation District personnel provided the leadership for the administration of the program.

The project produced a Teacher's Guide of Student Activities, a series of slides, and brochure describing the characteristics of the state park.

The Conservation District continues to act as the agency for dissemination of the project program.

---Roslyn M. Kahler
November 1976

ELEMENTARY AGRICULTURE PROGRAM

John K. Johnston, Teacher of Agriculture, Eastern Lancaster County Schools, New Holland, Pennsylvania 17557; (717)354-0840.

Overall Purposes:

The overall theme is the maintenance and improvement of the quality of our environment. An emphasis is placed on four main areas: safety around the home and farm, conservation of soil, water, and natural resources; sanitation; and agricultural occupations awareness.

Specific Objectives:

1. To teach the Pennsylvania Game Commission Hunter Safety Course.
2. To provide an awareness of the Common Snakes of Pennsylvania.
3. To develop an awareness of good safety habits.
4. To develop a basic understanding in approved practices concerning home projects and project-book recordkeeping.
5. To provide for each student the opportunity to have their home water supply tested for purity.
6. To enable the students to explore the field of agricultural careers through fieldtrips.
7. To teach conservation of our natural resources.
8. To create an awareness of the world food problem.
9. To create an awareness of the interrelationships of living and non-living organisms in our environment.

Target Audience:

Classes are held with all sixth grade students in the elementary schools, 90 students (one-quarter of the total enrollment) of the seventh grade and occasional classes with K-5 students.

Methodologies:

1. Student activities with "hands-on" experiences.
2. Fieldtrips to experience "on-site" learning of occupations, wildlife habitat, etc. and other subjects that were discussed in class.
3. Films and lectures to convey basic information on various subjects.

Materials Produced:

Various lesson plans.

Funding Sources:

Totally funded by the local school district.

Project/Program Evaluation:

All evaluation is conducted locally with input from the students, cooperating principals, teachers and district administrators.

During the 1975-1976 school year, the Department of Education, Harrisburg, Pennsylvania conducted an evaluation of the total elementary education system. The elementary agriculture program was part of this evaluation. Reports are on file with the local school district and Pennsylvania's Department of Education.

Plans for the Future:

Expansion into the K-5 classes.

(December 1976)

ENVIRONMENTAL AGRICULTURE PROGRAM

Philip Ogline, Cheryl Johnston, Instructors; Garden Spot High School, New Holland, Pennsylvania 17557; (717)354-0840.

Overall Purposes:

In view of the recent shift in student population from a basically agricultural one to a rural, non-farm and suburban population which has retained a strong interest in agriculture and increasing leisure time for the individual and the family, the overall purpose of the Environmental Agriculture Program is: 1) an integration of the vocational with the avocational aspects of the individual's life, 2) greater awareness and wiser use of community resources-both community groups and facilities and 3) the creation of an awareness, love and appreciation of one's natural surroundings.

Specific Objectives:

1. To provide the student with the opportunity to explore the abiotic elements of his environment.

2. To provide an understanding of plants and animals and their role in the food cycle.

3. To impress upon the student the importance of man's life style on the ecosystem.

4. To follow an interdisciplinary approach in creating an awareness of all the facets of the interaction of man and his environment.

5. To instill in the student an appreciation of the integral role agriculture plays in maintaining a quality environment.

6. To create an awareness, provide encouragement, and develop the skills for careers in Environmental Agriculture.

7. To provide the opportunity for leadership development through the FFA.
8. To develop patriotism, character, and responsible citizenship.
9. To create an atmosphere of mutual respect for rural-urban living.
10. To foster more profitable use of leisure time through the development of recreational skills.
11. To make the student aware of the need for wise planning in the utilization of land resources.

Target Audience:

The Environmental Agriculture Program is broken down into three course offerings for grades 9-12: Environmental Agriculture I - grade 9; Environmental Agriculture II - grade 10; Environmental Agriculture III - grades 11 and 12.

Methodologies:

The Environmental Agriculture Program has no textbook as such. The material in a certain unit is presented to the student through a "hands-on" philosophy through the use of community resources, both speakers and facilities, field trips, shop work and through the creative efforts of the teacher himself.

(December 1976)

SCHUYLKILL VALLEY NATURE CENTER FOR ENVIRONMENTAL SCIENCES

Richard L. James, Executive Director; Hagy's Mill Road, Philadelphia, Pennsylvania 19128; (215)IV2-7300.

Our overall purposes are environmental education for an urban area. We are located within the city limits of Philadelphia. Our target audience includes urban school children, teachers of those children and many members of a large continuing adult education audience.

Our methodologies are described in a number of brochures but basically, we use the awareness and acclimatization programs that have been very successful in many areas. We also put considerable emphasis on graduate training for in-service teachers.

Our funding sources are totally private. We earn approximately 70% of our annual operating budget and an additional 30% is received as a result of endowment investment.

Our most unique program at the moment is the development of a electronic trail for the physically handicapped, certainly the first of its type in the country. We are expanding our programs in environmental education at the masters' degree level of several colleges and universities in the Philadelphia area and a number of other programs that we think are useful and unique to the environmental education effort of the greater Philadelphia area.

---Richard L. James
November 1976

ENERGY: A TECHNOLOGICAL, ECONOMIC, OR MORAL CRISIS

John H. Anderson, Professor of Physics, University of Pittsburgh,
Faculty of Arts and Sciences, Department of Physics and Astronomy,
Pittsburgh, Pennsylvania 15260.

Since January of 1974 we have offered a course entitled Energy: A Technological, Economic or Moral Crisis. The course has been a part of the University External Studies Program of the University of Pittsburgh. Like other courses in the program, it is designed for home study. The class meets three times during a term, mostly for viewing films and class activities such as simulations and debates.

The course is intended to give those enrolled in it a basic understanding of energy, its importance in man's activities, and of the economic, social, and environmental problems generated by the increasing rate of utilization of energy. A further goal is to serve as an example to teachers of how to build a course which will blend traditional science with considerations of man's needs. Lay persons should become acquainted with resources in the field of energy, economics, and the environment.

The course is aimed at secondary school teachers, lay persons interested in problems of energy and the environment, and persons who enroll in the University's Energy Resources Program.

Because of the widely varying backgrounds of those who enter the course, we have provided a number of options permitting the student to tailor the course, to some extent, to her/his interests. Specific objectives of the course are, therefore, difficult to state, varying as they do from one student to another. For a given student the objectives are consistent with some subset of the following broadly stated goals:

1. To describe the role that energy plays in individual lives and civilization.

2. To learn factual data on energy supply and demand in the U.S. and the world.

3. To be able to list and discuss environmental side effects of energy production and use.

4. To learn and evaluate strategies for coping with environmental effects of energy production and use.

5. To become acquainted with the action of public and governmental institutions which regulate and set energy and environmental policies.

6. To examine criteria and methods for decision making in energy and environmental matters, recognizing the complexity of the problem and the possible need for developing new ethical insights.

7. To participate in problem-solving activities in energy and environmental areas.

8. To learn (or review) the concepts of work, energy and power.

9. To learn, understand in examples and apply the laws of thermodynamics, the idea of the degradation of energy and the concept of entropy.

10. To understand, be able to explain and apply knowledge of the details of operation of conventional engines and such less conventional devices as nuclear reactors, fuel cells, MHD generators, solar cells, etc.

11. To evaluate various schemes for the use of energy from the point of view of efficiency and environmental side effects.

We have produced a study guide which is really a textbook complete with objectives, study aids, and sample tests and a book of answers to all questions. Some supplemental readings are included in the course.

The original development of this course was funded by the Office of Environmental Education of the Department of Health, Education and Welfare.

We are currently revising the course structure as well as the textbook. Because the book is in midstream, we have no materials for distribution at the moment, the supply of the original version having been exhausted.

---John H. Anderson
October 1976

1973 DIRECTORY REFERENCE: pp. 527-528

1975 DIRECTORY REFERENCE: pp. 103-104

ENVIRONMENTAL MANAGEMENT PROGRAM

Joseph Breth, Program Coordinator; North Central Pennsylvania Regional Planning and Development Commission, 218 Main Street, Ridgway, Pennsylvania 15853; (814)773-3162.

The North Central Pennsylvania Regional Planning and Development Commission was awarded a grant on July 1, 1975 from the U.S. Department of Education for a one-year program on Environmental Education. The award was for $10,000 to be used to provide an Environmental Management Training and Educational Program for local personnel.

The program was designed to acquaint local officials and interested citizens with environmental issues affecting the North Central Pennsylvania region, as well as provide some basic environmental education for the local area.

The topics were established as follows: Local Water; Water Pollution; Industrial, Commercial, and Agricultural Pollution; Solid Waste Management; Land Use, Soil, Water and Development; and Community and Environmental Control.

Each seminar consisted of two and one-half hours of class with a cross-section of speakers from each side of the issue. Each seminar was then followed in two weeks by a workshop which dealt with specific areas of concern of the participants.

At the completion of the six-topic program, the Agency provided certificates of completion to people who attended three or more of the topics. Sixty-three certificates were awarded.

The Agency also compiled a survey form and submitted it to all the parties attending the program. About an 80% return of the questionnaires provided us with insight as to topic areas that were considered good and new topics for additional classes. The questionnaire results showed that all the topics were well-received and the speakers ranged from excellent to very good.

This program was concluded in May 1976. At present, the Commission is not directly involved with this type of educational project. However, recognizing the constant demands for courses and training, it is ready to assist in implementing such projects when the opportunities arise.

---Joseph Breth
October 1976

CENTER FOR AIR ENVIRONMENT STUDIES

Dr. Alfred Engel, Graduate Air Pollution Control Training Program,
150 Fenske, University Park, Pennsylvania 16802; (814)865-2574.
Dr. John Nesbitt, Environmental Pollution Control Program, 116 Sackett,
University Park, Pennsylvania 16802; (814)865-1226.

Reflecting the demand for atmospheric quality and the need for personnel with various degrees of education, training, and specialization, the Center for Air Environment Studies has made a concerted effort to see that several air pollution control training programs are provided at the University. As an intercollege unit, the CAES does not grant degrees and does not offer any courses of its own. However, air pollution related courses are taught in many academic departments of the University by CAES-associated faculty members. These courses are supported by the CAES through the administration of student training grant funds and through the provision of graduate assistantships. In an effort to expand the offerings in the field, an interdisciplinary Environmental Pollution Control Master's Program was established by The Graduate School and was chaired by the Director of the CAES during its initial five years of operation. In addition to resident instruction, continuing education courses and symposia are offered for those individuals who have acquired some field experience and wish the additional benefit of formal courses and the knowledge gained from current research. A description of the various programs offered through the auspices of the CAES during the past fiscal year follows.

Graduate Training Program

The Graduate Air Pollution Training Program was initiated in 1964 to train students for careers in air pollution control. Since the air pollution problem transcends many academic areas, students participating in the program come from a wide range of backgrounds -- underscoring the interdisciplinary character of the CAES. Graduates are well prepared for work in the air pollution field and bring their special knowledge to air pollution control agencies, research organizations, educational institutions, consulting firms, government and public administration, and industry. Regardless of chosen career, these students reflect an awareness of air pollution problems in general, have particular strength in their own fields, and are able to communicate across the boundaries of other disciplines.

Traineeships are provided for some of these students through a grant from the Office of Air Programs of the Environmental Protection Agency. These trainees are selected from those individuals who are interested in pursuing careers with air pollution control agencies. To prepare for this career, the trainees complete the requirements of the graduate degree program in which they are enrolled, take a course sequence of air pollution-related topics, and write a thesis on an air pollution problem in their field. This graduate program requires nine credits of air pollution course work -- six of which must be selected outside the student's major. In addition, the trainees participate in Air Pollution Control Seminars during the fall and spring terms. Through the seminars they are exposed to leading professionals in the field, to information too current to be found in publications, and to the research findings of fellow students.

In addition to graduate air pollution traineeships, a large number of master's and Ph.D candidates are supported through the Center each year on graduate assistantships. During the past year, twenty-eight students were appointed either on the various air pollution-related research grants administered through the Center or supported on Center budgets.

Air Pollution Control Engineering Technology Training Program

To provide incentive for students to enter the air pollution control field at the associate degree level, the Center for Air Environment Studies administers the Air Pollution Control Engineering Technology Training Program in conjunction with the College of Engineering. This six-term program is funded by a training grant of the Office of Air Programs of the Environmental Protection Agency which provides tuition and book expenses to students who have exhibitied a high performance and interest level during the initial two terms of study.

The first class to complete the associate degree program in Air Pollution Control Engineering Technology graduated in June of 1972. The program is conducted at the Berks Campus at Reading, Pennsylvania.

Completion of this training program prepares these students for careers as air pollution control technicians who will handle such responsibilities as the calibration, installation, and operation of monitoring equipment; the investigation of complaints; the conduction of plant inspections; and the evaluation of pollution sources.

Contributions to the Public Service Program of the University

As in the past, the Center for Air Environment Studies has continued to work closely with Continuing Education. Workshops, conferences, and symposia are frequently held for teachers, the public, and for industrial personnel in an effort to bring these groups a more comprehensive knowledge of air pollution control problems and solutions. This type of activity has proved to be of significant value as a method of disseminating current information to the public. Speakers and discussion leaders are active either in research or field services work in environmental science and technology and, consequently, have access to the most recent information available from educational, governmental, and industrial areas.

Examples of this effort are: the Industrial Gas Cleaning Workshop on the Removal of Gaseous and Particulate Air Pollutants held at the Center and sponsored by PSU faculty themselves; the EPA Short Course on Source Sampling Procedures presented by CAES associated faculty for EPA; and the EPA course on Air Pollution Meteorology conducted for State Air Pollution Control Bureau personnel by PSU faculty. These courses are addressed to practicing engineers who are directly responsible for or personally involved in the selection, installation, and operation of equipment for the control of emissions. The basic aim is to enable these individuals - through exposure to available literature, through knowledge gained in solving sample problems in different methods of collection, and through laboratory exercises - to largely educate themselves when new and perplexing problems confront them.

In response to requests from the state of Pennsylvania, the CAES is currently in the process of developing a number of short courses primarily for persons already working in the air pollution control field. During the past two years the Visible Emissions Program, coordinated with the Bureau of Air Pollution and Noise Control of the Department of Environmental Resources, and conducted by CAES personnel four times a year, has served as the certification procedure for Pennsylvania Department of Environmental Resources personnel and for industrial, federal, and other state employees. Its purpose is primarily the certification of smoke inspectors as mandated by law. The program has been very popular and is still growing. A large fraction of this growth comes from the industrial sector and from out-of-state. Since this short course concept has been so well-received, eight other specialized courses are being planned. These short courses will follow the format of courses offered by the Environmental Protection Agency at Research Triangle Park in North Carolina. Development of these courses at The Pennsylvania State University provides an additional geographic center at which such courses can be taken. They can be scheduled individually or in combination and will also be available to on-campus students. While the offerings are to be prepared by PSU faculty, an attempt will be made to cover all the topics present in the EPA prototypes so that the courses can be identified in relation to similar courses offered at other locations in the country. The primary advantages that PSU can offer such a program are the ready accessibility to faculty expertise in the field and the excellent facilities and instrumentation available.

CAES personnel have also served industry directly through a University consultation unit, PENNTAP. PENNTAP is supported by state funds, and its function is to provide assistance to those Pennsylvania industries which have special problems. Efforts in this area have been particularly appreciated by industry because the consultation has provided a better definition of the problem and has started the industry down the road toward an acceptable solution that is both economically and physically practical.

CAES staff members have participated directly in several other Continuing Education sponsored symposia and conferences.

Publications:

CAES No.	Title	Price
379-74	Proceedings of the Teachers Conference on Conservation of our Air Environment, 1974.	$4.50
226-71	Proceedings of the Teachers Conference on Conservation of our Air Environment, November 1971.	$4.00
182-70	Proceedings of the Teachers Conference on on Conservation of our Air Environment, November 1970.	$5.00

160-70	Proceedings of the Teachers Conference on Conservation of our Air Environment, April 1970	$2.50
222-71	Suggested Outlines, Content and Activities for Teaching Air Environment Studies in Schools.	$2.50

---Claire M. Gesalman
Information Aide/Information Services
October 1976

CAREER EDUCATION IN THE NATURAL RESOURCES

James H. Mortensen and Richard F. Stinson, The Pennsylvania State University, College of Agriculture, Department of Agricultural Education, 102 Armsby Building, University Park, Pennsylvania 16802; (814)863-0443.

A series of reports relating to Career Education in the Natural Resources were developed under funding from the Division of Vocational and Technical Education, Office of Education, U.S. Department of Health, Education and Welfare ((Grant No. OEG-0-714432(357), in 1973)).

Purposes: To develop curriculum guides in the natural resources for grades K-14; to acquaint educational leadership in all states with the curriculum products; and to disseminate in the states copies of the curriculum materials produced.

Method: Four curriculum materials were prepared which suggest a sequentially-developed education program offering career awareness, career exploration, and job preparation in the natural resources.

Regional Briefing Sessions were held at Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, and Seattle. More that 300 classroom teachers, guidance counselors, school administrators, teacher educators and state education department personnel attended these meetings and examined preliminary drafts of the materials. Recommendations made to improve the four publications for meeting the wide variations in needs and practices across the nation are reflected in the final documents.

Publications were printed by U.S. Government Printing Office and disseminated in the states.

Findings: Titles and brief descriptions of new curriculum materials are given below. They are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

1. Natural Resources and Career Awareness, A Teacher's Guide for Grades K-6, Stock No. 1780-01256, $1.50.

   Intended for interdisciplinary use, this guide offers activities which aid the child in exploring his world and dividing this world into identifiable study groups; deal with the needs of living things and relate them to the use of natural resources; and help children become aware of specific information about and interrelationships that exist among natural resources.

2. Exploring Occupations in the Natural Resources, A Student Resource Guide for the Middle School, Stock No. 1780-1257, $1.40.

   Written for student use this resource guide suggests hands-on experiences, field observations, and classroom activities to help students develop knowledge of their personal strengths and weaknesses and to be able to understand the relationship of these characteristics to educational and vocational choices. Also contained in the publication are brief descriptions of 39 selected natural resources occupations in the development, maintenance, protection, and recreational utilization of soil, water, air, forests, grasslands, fish, wildlife, minerals and mineral fuels, and land space.

3. Occupational Preparation in the Natural Resources, A Suggested High School Curriculum Guide, Stock No. 1780-1258, $1.15.

   Written for administrators, teachers, and guidance counselors, this curriculum guide suggests procedures for implementing a specialized program for occupational preparation in natural resources and provides outlines of 32 units for instruction in soil, minerals and mineral fuels, water, air, forestry, rangeland management, wildlife, fish, land use planning, and the recreational utilization of the natural resources.

4. Natural Resources Technologies, A Suggested Post-High School Program Development Guide, Stock No. 1780-1259, $1.40.

   Intended for administrators of post-high school institutions, this program development guide outlines technological programs in air pollution control, forestry, rangeland, mining, geology, outdoor recreation, soil, urban-regional planning. landscape architecture, water resources development, water supply and wastewater treatment, oceanography, wildlife, fish, and marine life.

---J. H. Mortensen
September 1976

ERIC DOCUMENTS:

1. Natural Resources and Career Awareness. A Teachers' Guide for Grades K-6. ED 099 492
2. Occupation Preparation in the Natural Resources: A Suggested High School Curriculum Guide. ED 099 493

3. Natural Resources Technologies: A Suggested Post-High School Program Development Guide. ED 099 494
4. Exploring Occupations in the Natural Resources: A Student Resource Guide for the Middle School. ED 099 495

OCEANOGRAPHIC SCIENCES CONCEPTUAL SCHEMES PROJECT, ESEA TITLE III

Paul F. Teller, Director; Charleston County Public Schools, 3 Chisolm Street, Charleston, South Carolina 29401; (803)722-8461.

The overall purpose of the Oceanographic Sciences Conceptual Schemes Project (OSCSP) was to devise a means of introducing marine science studies into our highly-structured, largely land-based science programs. The program had to be low in cost, flexible, and could not involve intensive field studies. The target population included all science teachers and students of grades 9-12 in the Charleston County Public Schools.

After two years of working directly with teacher workshops, class field trips, and normal science classes in diverse schools, it was determined that the most useful permanent product of OSCSP would be a set of guides to the marine environment, including exercises, which would enable teachers to devise a marine science course tailored to the constraints and other features of their own situations. The major topics of the books were based on a national survey of priorities in ocean science topics by the OSCSP staff which appeared in Science Education as "Priorities in Ocean Science Study" (Science Education 58(4): 449-456 (1974)).

Eventual OSCSP products included ten books, listed below, on marine and related sciences and a paper describing the results of the priority survey.

Animals of the Sea: Coelentenates	ED 086552
Animals of the Sea: Protozoa	ED 086552
Animals of the Sea: Sponges	ED 086552
Aspects of Marine Ecology	ED 086553
Estuaries	ED 086554
Marine Biological Field Techniques	ED 086555
Sea Changes: Topics in Marine Earth Science	ED 086556
Zones of Life in the Sea	ED 086557
Animals of the Sea: Ctenophores	
Field Guides: Natural History in the Classroom	

There are no plans for the future, other than possibl getting money for revision and reprinting of the books.

---Paul F. Teller
October 1976

1975 DIRECTORY REFERENCE: p. 251

ENVIRONMENTAL EDUCATION WORKSHOPS

Lowell D. Richards, District Director, First Planning and Development District, Model Rural Development Program, 401 First Avenue, N.E., Watertown, South Dakota 57201; (605)886-7224.

The overall purpose of our workshops is to expose local officials and the general public to recent developments in environmental legislation especially as it pertains to local policies and practices. Workshop activities will be designed to assist local officials and citizens in making decisions, individually and collectively, that will enhance the quality of their environment.

Specific objectives: (a) Inform local elected and appointed officials of recent state and federal air quality, water quality and solid waste regulations, and lakes preservation; (b) Examine the relationship among local, state and federal environmental programs; (c) Analyze the alternatives open to local governments to comply with environmental regulations and the cost/benefit of each alternative.

Each workshop (six in all) will involve various topical areas that concern citizens in eastern South Dakota. Speakers for each topic will be used to provide information through a general presentation and then a discussion session with the audience. These speakers will be persons lending scientific and planning expertise to current environmental questions.

All locally elected officials will be contacted and newspaper announcements will be used to publicize the workshops. Each workshop will be held in the evening at the southern end of the planning district and on the following evening at the northern end of the district.

The total project is being funded by a grant from the Environmental Protection Agency. This is the first time such Environmental Education Workshops have been sponsored by our office. I feel it would be very worthwhile to have a yearly series of workshops to deal with new environmental legislation if funding and staff time would permit.

---Lowell D. Richards
October 1976

FORT DONELSON ESA

Fort Donelson National Military Park, P.O. Box F, Dover, Tennessee 37058; (615)232-5348.

The environmental education program of Fort Donelson consists of two one-mile environmental trails with written guides designed for students in grades 3-9. They are also open to all park visitors.

The overall purpose of the trail is to use it as a vehicle to introduce the environment as a whole or as a "Big Picture." By familiarizing the teacher and student with the STRANDS, a member of the park staff introduces them to the similarities, patterns, interactions, changes, and adaptations that occur in nature. This is done by question and answer session while hiking the environmental trail and using the surroundings as examples.

During the program the student will hopefully develop an awareness of the connection of all existing things, and the role that he or she plays in this connection. An understanding of the "Web of Life" and a commitment to protect and preserve the resources entrusted to them should be achieved.

Due to the method of instruction in the program, the size of the group cannot exceed 50. Smaller numbers are more effective since awareness games are used as a part of the program. Small groups can be handled more easily for those teachers who use the trail guide and conduct their own walks.

A continuation of present program is planned for the future.

---E. J. Pratt, Superintendent
December 1976

ARTILLERY MONUMENT AND CEDAR GLADES NESA'S

Elizabeth C. Cook, Environmental Education Coordinator, Stones River National Battlefield, Route 2, Old Nashville Highway, Murfreesboro, Tennessee 37130; (615)893-9501.

Purpose and Methodologies:

National Environmental Study Areas (NESA) began on lands of the National Park System. The purpose of the NESA's are to provide a different kind of environmental learning experience by combining the cultural and natural worlds. Students are taught to relate to their world by: introducing them to their total environment - natural and cultural, past and present; developing within them an understanding of how man uses his natural resources; and teaching them to be active and responsible members of the world they are shaping. These are life-long processes which influence behavior patterns, and create essentially an environmental ethic. NESA's are primarily natural (everything man is, or builds, was "nature" before anything else); or cultural (certain natural factors that for example formed a battlefield). Stones River National Battlefield has two NESA's which use a combination of the natural and cultural.

Objectives:

The principal objectives of the Artillery Monument NESA and the Cedar Glades NESA are to maintain close liaison and cooperation with Federal, State, County, and local officials, bureaus, departments, and agencies, as well as private organizations, other private interests, and members of the public, for the purpose of encouraging educators throughout the region to participate in the environmental education programs of the Service.

Target Audience and Materials Produced:

Although the target audiences for the parks, two NESA's are Kindergarten through eighth grades, the areas are also used by high school and university students for special studies. Workshops are held by Park Service personnel to teach educators, Students Toward Environmental Participation (STEP), and university students how to use the area and equipment in order to assist teachers when they bring their classes to the park for environmental studies. Participants of the workshops are taught to use the National Environmental Education Development (NEED) Curriculum, and are given copies of the park's teachers manuals. Currently there is a teachers manual for each area (Artillery Monument NESA and the "Cedar Glades" NESA). These are only given out at the workshop.

Program Evaluation Report:

During the calendar year 1975 the Artillery Monument NESA had special use by 11 groups of 331 Boy and Cub Scouts. The "Cedar Glades" NESA was used by 32 groups of 970 students.

Plans for the Future:

Plans for the future include making the areas more self-contained by having shelters and restroom facilities in the area. This would give students a place to study in inclement weather, and they would not have to rely on the Visitor Center. Hopefully, more school systems will make the areas more a part of their curriculum.

(December 1976)

TVA AND THE ENVIRONMENT

Dr. Ruth Neff, Project Director; Jonathan Gibson, Project Coordinator; Tennessee Environmental Council, P.O. Box 1422, Nashville, Tennessee 37202; (615)251-1110.

In January 1975, the Tennessee Environmental Council (TEC) applied to the U.S. Office of Education for a $10,000 mini-grant to conduct a series of regional symposia on the topic "TVA and the Environment". This topic was selected for four reasons: 1) the Tennessee Valley Authority is a unique governmental institution, possessing characteristics of both a federal agency and a private corporation; 2) TVA's resource management policies have a major environmental impact on the Tennessee Valley region; 3) the Authority's policies have become the subject of increasing controversy in recent years; 4) an understanding of TVA and its programs is a prerequisite for responsible citizen action for either support or reform of the agency's policies.

The objectives of the symposia were twofold: 1) to give citizens accurate information with which to form their own conclusions about what TVA has accomplished, and about what TVA should become, and 2) to acquaint citizens with ways in which they might influence decision making within this unusual agency. The Council's application was supported by a letter from John Van Mol, TVA's Director of Information, with whose office TEC staff worked closely in organizing the ensuing symposia. On June 11, 1975 the Council received notification that its application was one of 75 awards made by the Office of Education for Fiscal Year 1975, and one of two such grants in the State of Tennessee.

The project staff, Dr. Ruth Neff, Project Director, and Jonathan Gibson, Project Coordinator, first convened a planning committee to evaluate alternatives for conducting the symposia. Eighteen representatives of various organizations and interest groups attended an initial planning meeting on August 20, 1975. The planning committee decided not to reexamine the more visible of the TVA issues (electric rates, reservoir projects, nuclear power, coal purchasing policies). It was expected that these topics would come up of their own accord, and they were, in fact, discussed at several of the symposia. Instead, the committee chose to concentrate on equally important but less widely perceived aspects of TVA's programs (air pollution control, energy conservation, industrial and agricultural development) with emphasis on the legal and technical issues. The committee also endorsed the concept of regional symposia. Three locations were selected - Nashville, Knoxville, and Cadiz, Kentucky. Consideration was given to a fourth session at Muscle Shoals, Alabama, but this site was abandoned due to scheduling difficulties.

Four considerations were paramount as project staff set about organizing the symposia. First, the staff decided to use a variety of formats in order to test different approaches to public education on environmental issues. Second, different topics would be explored at the different symposia. The combination of topics for a given symposium was determined by special local interests and availability of speakers. Third, local cosponsors would be selected for each symposium so as to enhance the credibility of the event and to provide assistance with local arrangements. Fourth, announcements and publicity would be directed toward a variety of interest groups in order to attract a broad and diverse audience.

The Council attempted to assure a factual and objective treatment for all topics, with differing points of view given fair and equal representation. For four of the six topics, contracts were signed with professional researchers for preparation of 20 to 40 page reports setting forth the factual background. The researchers were:

The Legal Framework of TVA:	Richard Wirtz, Professor of Law, University of Tennessee College of Law.
TVA and Energy Conservation:	Dr. John Gibbons, Director, University of Tennessee Environment Center.
TVA and Air Pollution Control:	David Ross Stevens, Environmental Reporter, Louisville Courier Journal and Times.
TVA and Agricultural Development:	Keel Hunt, Environmental Reporter, The Nashville Tennessean.

The research contracts called for the author of each paper to summarize the major issues in his report at one or more symposia. Commentators were selected to represent positions supportive and critical of TVA. The topic "What is TVA's Role in Industrial Growth?" was addressed by four panelists representing different organizations. Discussion of "Opportunities for Public Input" was provided by the Director of TVA's Office of Information.

Pre-symposium publicity for all three events was arranged through public service radio announcements and press releases to area newspapers. University of Tennessee public relations offices assisted with media contacts for the Nashville and Knoxville session. TVA's Office of Information prepared and mailed an agency release on the symposia in Nashville and Cadiz. All five symposium sessions received press coverage the following day in major regional newspapers. Radio interviews describing the programs were conducted on WPLN in Nashville, and WKDZ in Cadiz.

Audience participation at the symposia was most satisfactory for the three Nashville sessions. Attendance was lower at Knoxville and Cadiz but audience interest remained high. Turnout at the five sessions was as follows:

Nashville,	January 21, 1976	80	Knoxville,	March 20, 1976	70
	January 28	90	Cadiz,	April 26	50
	February 4	70			
				Total:	360

In order to preserve and disseminate the information developed in the symposia, all proceedings were tape-recorded. Three sessions were videotaped. Factsheets on each major topic were prepared by TEC staff, and research reports were reproduced in limited numbers. (A total of four factsheets were prepared. Two others on Resource Management and Public Participation were not done due to a change in project schedule). The audio and video tapes will be held by TEC as a permanent record of the symposia and for loan to interested parties. Research reports and this final report to H.E.W. were printed in sufficient quantity using grant funds to supply copies to all program participants. Additional copies of these documents were printed at Council expense and will be made available at cost to the public upon request. The text of remarks by guest speaker S. David reeman was also reproduced in full.

The success of the symposia can be measured not only by the substance of the individual sessions, but by various ancillary benefits, some planned, others fortuitous. All four contract researchers have made use of the information developed for their TVA reports in their professional capacities - university teaching, newspaper reporting, and environmental management. Some half a dozen major newspaper articles appeared in the Nashville *Tennessean* and the Louisville *Courier Journal* as a result of the investigations. Such use of research materials was encouraged by the contracts signed with the Council. Interviews with three symposia speakers were aired on WCDN in Nashville as part of a biweekly public service program of the Nashville League of Women Voters.

In addition, TEC staff have employed materials and information developed for the symposia in conducting a "special topics" course on "TVA and the Environment" in the environmental sciences curriculum at the University of Tennessee at Nashville. Some one dozen students completed this course in the spring quarter of 1976. Educational benefits of the symposia were further multiplied by use of symposium information in ongoing research by TEC staff and in programs presented by the staff to community organizations in Middle Tennessee. Project coordinator Jonathan Gibson utilized materials on TVA in programs before the Middle Tennessee Sierra Club group, the Madison and Green Hills Kiwanis Clubs, and the staff organization of the Nashville and Davidson County Public Library. Additional programs will continue by use Symposium materials after conclusion of Fiscal Year 1976.

This final report, together with copies of research reports and other supplementary documents will be presented to the TVA Board of Directors at their biweekly Board meeting or by mail.

Evaluation:

The series of regional symposia project was an invaluable learning experience for the sponsoring organization, the Tennessee Environmental Council. The scope of the project was greater than any single previous undertaking in the Council's five-year existence. Some miscalculations may have reduced the overall impact of the symposium, but lessons learned will aid the Council as it attempts similar educational ventures in the future.

To assist the Council in assessing the project, copies of this report and an evaluation form were sent to 30 individuals who participated in the symposia as speakers, panelists, or cosponsors. In addition, all persons who attended the symposia were sent an announcement of available publications and a questionnaire on major issues currently facing TVA. The results of the survey will be made available to public officials and to TVA.

Recruiting Cosponsors:

One of the early difficulties was in obtaining cosponsors for the local events. At least five organizations declined to assume this role for one or more of the following reasons: 1) The organization had a standing prohibition against cosponsorship of other groups' functions; 2) The organization's purposes did not include general educational events of this nature; 3) The organization feared that the possible controversy might reflect badly on the organization itself or impair its relations with TVA.

In several cases, this reluctance could have been overcome if TEC staff had had specific program materials (lists of speakers, factsheets, etc.) in hand when extending invitations for cosponsorship. Because identification of cosponsors was needed early in the project, these materials were usually not available and some organizations were understandably dubious about the implications of their involvement.

The six organizations which did serve as cosponsors performed a valuable service of advice and coordination. With the exception of generating and notifying a mailing list, all program organization - scheduling, publications, recruitment of speakers - was handled by project staff. Sponsoring groups were able to support a community educational service at no financial obligation to themselves. All expenses were met directly from grant funds or through reimbursement to cosponsors for any expenses incurred.

Role of TVA:

A related issue was the relation of TVA itself to the project. Throughout the project, representatives of TVA's Office of Information provided advice and information not only to TEC but also to contract researchers. TVA's initial preference was not to have agency personnel appear on the symposium programs. Instead, TVA would assist the Council in identifying private citizens who might prove able supporters of the Authority's viewpoint on a given issue. The objective was to have citizens themselves looking at TVA - critics and supporters talking to one another and expressing their respective evaluations of TVA's programs. It was argued that a more productive discussion would ensue with TVA as the "Examinee" than with TVA cast in the role of a defensive bureaucracy.

This format was followed at the Nashville sessions, featuring TVA's former general counsel (now a professor of law at the University of Arkansas), the manager of one of TVA's 160 electric power distributors, and representatives of two industrial development associations with close ties to

TVA. Personnel from TVA's Information Office, Division of Law, Power Marketing Division, and economic development program were among the audience at the three Nashville sessions. This low-profile approach proved less than satisfactory from the standpoint of providing the audience with an authoriatative statement of TVA policy. Questions were sometimes technical, sometimes hostile, and non-agency spokesmen were not always able to provide satisfactory responses on TVA's behalf. In subsequent sessions in Knoxville and Cadiz, this problem was rectified with TVA spokesmen speaking directly and officially for the agency on the topics of TVA's legal framework, air pollution control, agricultural development, and opportunities for public input. This approach appeared to elicit a more satisfactory audience response.

Alternative Formats:

One of the major decisions in project implementation was whether to hold one large central symposium or smaller regional symposia. The regional approach was chosen because of the size of the seven-state TVA area and the desire to reach a wider and more diverse audience than might be attracted to one central event. The Council also desired to experiment with different program formats in different sections of the TVA region. The project as conceived and implemented served these objectives.

It is interesting to speculate retrospectively, however, about the possible advantages of a single event - perhaps a two-day symposium in a central location like Nashville. More public officials might have been recruited for major addresses on TVA. (Project staff invited Tennessee Senators Howard Baker and Bill Brock to the Nashville session and TVA Directors Aubrey Wagner and Bill Jenkins to the Knoxville event; all were interested, but scheduling conflicts prevented their attending.) Audience participation might have been greater if a theme like "TVA: A Time for Change" were chosen and if the conference included group discussions and workshops to allow fuller exploration of issues among TVA staff, TVA critics and agency supporters. Better media coverage, particularly live radio and TV coverage, might have been attracted. The staff effort would have been concentrated on one event rather than on five separate sessions over a few-month period.

Having opted for the local and regional approach, the staff might have made greater use of scheduled meetings of existing community organizations rather than staging independent meetings. Local organizations such as Civitan and Rotary Clubs, Jaycees, Garden Clubs, and professional societies with regular meeting dates are frequently in need of guest speakers and programs. Perhaps, with TVA assistance, TEC could have made fruitful use of grant funds by undertaking a "speakers bureau" approach to the topic "TVA and the Environment". This would have involved co-ordinating civic club speaking engagements of TVA personnel, TEC's research contractors, TEC staff, and citizen commentators to highlight the issues, outline TVA activities and positions, and to raise and answer questions.

The Tennessee Valley Authority remains a subject of widespread interest in the Tennessee Valley region. TVA is certain to remain the subject of formal and informal citizen scrutiny. TVA itself needs to experiment with improved and innovative communication techniques, including conferences and symposia, public hearings, opinion surveys, and open discussion with critics and supporters alike. Such an effort on the part of TVA would serve both the interests of public education and of better-informed citizen participation in the making of TVA policies affecting social, economic, and environmental conditions in the Tennessee Valley.

---Jonathan Gibson
October 1976

DEPARTMENT OF ENVIRONMENTAL - OUTDOOR EDUCATION, NASHVILLE METRO SCHOOLS

Lib Roller, Coordinator; Ann Keffer, David Durham, Richard Green, Outdoor Teachers; Head School, 500 20th Avenue N., Nashville, Tennessee 37203; (615)320-1082.

The overall purpose of the Department of Environmental/Outdoor Education is to help teachers learn to use the out of doors as a learning labratory in all subject matter areas. The program is spearheaded into five areas:

A. On school site demonstration lessons;

B. Outdoor Resident School (School-Of-The-Woods) 12 weeks with three 6th grade classes each week with their teachers and the department outdoor teachers;

C. In-Service - several short in-service sessions during the year and a week-long workshop in the summer with 3 hours graduate credit;

D. Environmental Study Areas - at this time four are set up with self-guided trails and activity areas. Each area has a booklet with activities and a kit of equipment.

E. Kits of materials sent to teachers - Teacher manuals are provided each teacher in several areas. The Department serves 93 elementary schools, K-6, with 43,000 students.

Some special activities, such as the week-long, on-school-site, pioneer living program are done on request of the teachers. Trees are sent to each school and garden tools and seeds are provided. Cameras and film are provided schools wishing to make slide sets.

Evaluation of the program is done by the teachers for each activity. In addition, students, parents and high school student counselors also evaluate the School Of The Woods.

Future plans include more classes at the School Of The Woods, six more environmental study areas, and additional teacher manuals.

---Lib Roller
October 1976

1973 DIRECTORY REFERENCE: pp. 565-567

1975 DIRECTORY REFERENCE: p. 110

ERIC DOCUMENTS:

1. Using the School and Community. An Environmental Study Area. Teacher's Handbook. ED 071 917
2. Outdoor and Environmental Education Manual, Grades K-6. ED 081 607
3. Baggage Tags for Learning Out of Doors. ED 089 899
4. Environmental Education. Teacher's Handbook, Grade 5. ED 094 912

TVA ENVIRONMENTAL EDUCATION PROGRAM

John R. Paulk, Projects Manager, Environmental Education, Tennessee Valley Authority, Forestry Building, Norris, Tennessee 37828; (615)632-4411.

The Tennessee Valley Authority, as a Federal agency concerned with the development of both human and natural resources of the Tennessee Valley area, has set a high priority on the development and implementation of environmental education. The environmental education activities of TVA are centered primarily in the seven states included in the Tennessee River Valley--Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia.

TVA's environmental education objectives deal with the formal and nonformal realms. Formal programming is directed at educational institutions in the various states and carefully coordinated with each state department of education. Programming includes such activities as teacher training workshops, in-service programming, assistance in school site development for environmental education, identification of curriculum sources, and general assistance with implementation of programs at specific sites. Special assistance is given in obtaining use of TVA lands and facilities to groups involved in environmental education.

TVA also lends support and assistance to the educational communities through the systematic development of regional cooperatives. Typically, a cooperative consists of eight to twelve school systems which unify to support environmental education in their respective areas. An environmental education coordinator is hired by the cooperative to implement program priorities relating to environmental education. TVA assists in the conceptual development of such cooperatives and provides initial support for many of the activities. Each cooperative, however, functions independently of TVA and is usually totally self-sufficient within a few years. Several cooperatives are currently operative and provide excellent models for similar developments.

Within the non-formal aspects of environmental education, the major focus is on the general interpretation of TVA lands and facilities for visitation and use by the general public. Activities include trail development, display and exhibit development, and the management of TVA Small Wild Areas. In a manner similar to the formal development of environmental education, facilities and lands are being systematically identified across the Tennessee Valley as sites for implementation of the non-formal program. These sites range in diversity from an antiquated 1908 dam and powerhouse emphasizing energy themes to a reconstructed 1850's farm community emphasizing man-land relationships.

TVA's Land Between The Lakes demonstrates both the formal and nonformal approaches and is an excellent place to observe environmental education in action. This 170,000-acre peninsula in west Tennessee and Kentucky is the major demonstration area for several aspects of TVA's environmental education program. The educational facilities include the Youth Station, a year-round residential facility for teachers and students involved in environmental education activities; Empire Farm, a collection of farm related tools, products, and animals emphasizing man's use of the land resources for food and fiber; the Primitive Farm, a homesite area representing the era of the 1850's demonstrating the life styles and living environment of a typical settler in the "twixt the rivers" region; historical iron furnaces; and interpretive buildings. These facilities and other recreation-related features are linked by an expansive network of scenic trails. Environmental Education programs can be observed throughout the year at Land Between The Lakes.

---Lynn M. Hodges
November 1976

1973 DIRECTORY REFERENCE: p. 243

1975 DIRECTORY REFERENCE: pp. 44-46

ERIC DOCUMENTS:

1. Youth Stations Guidelines for Use. ED 077 694
2. Bear Creek, Alabama - Teachers' Workshop in Environmental Education. (Hodges, Alabama, June 14-18, 1971). ED 077 695
3. Murray State University - Teachers' Workshop in Environmental Education (Youth Station, Land Between the Lakes, August 8-14, 1971). ED 077 696
4. Murray State University - Teachers' Workshop in Environmental Education (Audubon State Park, Henderson, Kentucky, June 19-23, 1972). ED 077 697
5. Murray State University - Teachers' Workshop in Environmental Education (August 7-12, 1972). ED 077 698
6. Use That Campus. ED 081 608

7. A Process Model Showing How a Federal Governmental Agency, Such as the Tennessee Valley Authority, Can Utilize Its Resources to Cooperate With Other Agencies in the Development of Environmental Education Programs for the Tennessee Valley Region. ED 092 354
8. Murray State University - Teachers' Workshop in Environmental Education (Youth Station, Land Between the Lakes, August 5-10, 1973). ED 100 677
9. Environmental Education Study Projects for High School Students. ED 106 084
10. Developing Environmental Study Areas. ED 125 852
11. Developing Environmental Education Curriculum Material. ED 125 852
12. Environmental Education Study Projects for College Students. ED 125 854

ENVIRONMENTAL STUDY AREAS

Shiloh National Military Park, Shiloh, Tennessee 38376.

Overall Purpose:

The environmental study areas at Shiloh National Military Park are laid out to make users more aware of their impact, and the impact of their predecessors on the natural environment.

Specific Objectives:

1. To relate specific areas of the battlefield to events of yesterday and today.

2. To see how the natural and social environments have been changed by these events.

3. To understand these changes.

Target Audience:

Third through ninth graders in the surrounding communities.

Methodologies:

Role playing, discussion, crafts, talks.

Materials Produced:

Guides for each area.

Plans for the Future:

Continue programs as established.

(December 1976)

CITYSCAPE: A CITY AND ITS RIVER

Sherry Kafka Wagner, Director, Project CITYSCAPE, Southwest Educational Development Laboratory, 211 East 7th Street, Austin, Texas 78701; (512)476-6861 Ext. 260.

The Southwest Educational Development Laboratory, an Austin-based nonprofit corporation, has received a grant from the U.S. Office of Environmental Education to produce a one-hour television show entitled CITYSCAPE: A CITY AND ITS RIVER. This production will deal with the development of the San Antonio River and the process by which that river was transformed from a liability to an asset.

Purpose of the television production is twofold: (a) To introduce a wide viewing audience to the issues of urban design and to develop consciousness about the built environment as well as the natural environment; (b) To use this production as a pilot production in an attempt to seek funding for a television series entitled CITYSCAPE which would study a number of success stories from communities throughout the nation, both large and small.

Project products will include a 52-minute 16 mm. color film, videotape and videocassette copies of the film, printed guides to accompany the presentation, and a final report including a Project Evaluation. Project activities began on August 15, 1976 and will be completed by April 15, 1977. Location shooting on the San Antonio River will occur this fall.

A seven-person national Advisory Board, composed of architects, planners, and citizens concerned with environmental issues, has been formed to aid in the development of the project. Serving on the board are: John L. Kriken, San Francisco; Weiming Lu, Dallas; Nancy Brown Negley, San Antonio; Andrew Euston, Washington, D.C.; Peter Chermayeff, Boston: Patsy Swank, Dallas; and Vicki Beal, San Antonio.

Sherry Kafka Wagner, Project Director, will supervise all facets of the project, including serving as producer of the film. The film will be directed by Warren Skaaren, President of the Skaaren Corporation, a media consulting firm in Austin.

---Sherry Kafka Wagner
October 1976

SEMINAR ON WATER QUALITY

Lewis H. Boyle, Project Coordinator, Environmental Education and Training Program, Texas Water Quality Board, P.O. Box 13246, Capitol Station, Austin, Texas 78711; (512)475-6060.

The Texas Water Quality Board's Environmental Education and Training staff is continuing to offer its Teacher Seminar Program on Water Quality Management during the 1976-1977 school year. Since the seminar's beginning in September, 1972, eighty-one programs have been conducted with more than 2,300 teachers from all areas of the state participating in this training function. As in the past, the seminars are provided at no charge to the participating schools.

The seminar is a six-hour program designed for secondary science and social studies teachers who are interested in incorporating realistic water quality concepts into their classrooms. The program provides participants with accurate up-to-date basic information on water quality management. From this base, teachers will be able to develop learning experiences in environmental water quality for their students.

The seminar focuses on five major topics: 1) Role of Federal, State, and Local Governments in Water Pollution Control; 2) Water Quality Parameters; 3) Wastewater Treatment Methods; 4) Biological Responses to Water Pollution; and 5) Social and Economical Factors Affecting Water Pollution Control. Members of the training staff utilize 35mm slide presentations, 16mm films, thought-provoking tests, demonstrations, and group discussions to accomplish seminar objectives. Each participant in the seminar receives a teaching packet of supplemental resource materials which is related to the seminar topics, and may be easily incorporated into the teaching curriculum. All equipment used in the program is provided by the TWQB, and each seminar is conducted on the campus of the participating school.

---Lewis Boyle
October 1976

1973 DIRECTORY REFERENCE: pp. 568-569

1975 DIRECTORY REFERENCE: pp. 111-112

ERIC DOCUMENT:

Texas Water Quality Board Teachers' Workshop Program. ED 103 227

PADRE ISLAND NATIONAL SEASHORE

Padre Island National Seashore, National Park Service, 9405 South Padre
Island Drive, Corpus Christi, Texas 78418.

The National Seashore offers an ideal situation for environmental education. Various natural types of environments are present which, along with past human impacts and visual off-site impacts, provide excellent sources of insight and understanding of these overall interactions of the environments.

Specific Objectives:

1. To provide assistance to teachers and groups, as manpower allows, for the use of these resources.

2. To invite use through programs, teacher contacts, encounters with schools of the potentials existing on the National Seashore.

Target Audiences:

Third through sixth grades of elementary schools, high school environmentally-interested groups, and teachers.

Methodologies:

Provide for the use of the Grasslands NESA trail by all elementary schools with teachers' materials. The present teachers' use materials have diminished and a complete revision is needed.

High school students are invited to participate in STEP workshops which are presented by a combination of park staff, VIP's, and other leaders. Our Chief Naturalist has worked up materials used in these workshops. This program has been of fair success in the immediate area but has been of great success in the San Antonio area where it developed into a vital functioning program in several of the high schools. The program has developed through our VIP staff and leaders trained in previous workshops here at the National Seashore. Our materials and format have been modified and developed by these people to fit their needs and groups.

Teachers are encouraged to contact us for any assistance in setting up workshops and when manpower allows a limited number of guided walks are scheduled. The local Independent School Districts around the Corpus Christi area have arranged through their Science Consultants Environmental Education Workshops with our staff. These are basically teacher workshops held either at the National Seashore or in schools. The program format involves the methods and techniques used in the Grassland ESA trail, the beach and its resources, and the various concepts the National Park Service has to offer. Finally, natural crafts and techniques pertinent to this area are demonstrated by the group.

Project/Program Evaluation:

There are no published reports on these activities. We have only verbal comments from groups and individuals to evaluate our programs. Our self-evaluation of the program is not in written form.

Plans for the Future:

Plans are underway to develop a new ESA on the beach. This will have teachers' materials which are being drafted. Continued efforts will be directed on the updating of materials of the Grassland Trail. Work with teachers and arrangements for workshops will be continued whenever possible. Continued coordination and encouragement will be given to these groups.

---John F. Turney
December 1976

CITIZENS' ENVIRONMENTAL COALITION EDUCATIONAL FUND, INC.

Ann Hartley, Citizens' Environmental Coalition Educational Fund, 1200 Bissonnet, Houston, Texas 77005; (713)524-7451.

History and Function:

The Citizens' Environmental Coalition Educational Fund, Inc., was originally founded in 1970 and later became incorporated into a non-profit educational organization. As its name implies, the CEC is a unique collection of approximately forty often-diverse groups, each sharing an interest in making the Southeast Texas Gulf Coast Region a cleaner, safer place in which to live and work.

Its primary function is that of an environmental clearing house - to foster public awareness of environmental activities. As a citizens' organization, the CEC recognizes the symbiotic nature of our ecosystem; the environment is delicately balanced by the individuals who inhabit it. Concerned citizens must have information to be able to assess intelligently the potential impact environmental legislation may have on a particular region. Decisions with multiple long-range implications are made almost daily which concern local, national and international policy on energy, air and water pollution, flood-plain management, land surface subsidence, water resources development and land-use planning. The CEC was formed with the specific goal of disseminating credible environmental information to the general public, interested civic groups, and the news media, as well as providing an impartial forum where public officials can meet and interact with citizens concerned with the quality of the environment.

Appointed representatives of the Board present reports before local, state and national audiences to help widen the awareness program that the Board catalyzes. The CEC Board of Trustees, elected from the General Assembly of delegates representing each member group, adopted a platform in November, 1973, setting out positions concerning environmental protection. As an environmental organization, the CEC has earned the respect of the communities within which it operates. An example of confidence displayed in the CEC by the governing bodies of various political subdivisions within which it operates is that frequently the CEC is requested to send representatives to officially appointed advisory boards and study groups.

Newsletter:

Through a monthly Newsletter, the CEC offers a calendar of environmental activities. Also, an overview of recent legislation and topics related to environmental protection are presented. Writers concerned with various fields dealing with the protection and maintenance of our environment are invited to present their cases and opinions; opposing views are solicited.

Luncheons:

Luncheon meetings, held monthly, present informative programs on environmental issues; the speakers represent various professions and offices concerned with specific environmental problems. Luncheons are open to the public.

Inquiry Program:

"Town Hall" meetings are scheduled in which panelists, experts in their respective fields, participate by presenting their positions on issues that vitally affect the public interest. The Inquiry Program has brought together hundreds of people dedicated to protecting the environment. More than a dozen papers have been published since 1972 - topics from "Inquiry on Land Subsidence and Waste Water Re-Use" (1972), to "Will Man Survive?" (1974), to "Fluoridation" (1975). These papers are mailed to all elected officials and member groups.

Scholarship Program:

The CEC, acting in conjunction with donor individuals, corporations or organizations, administers a program through which scholarships are awarded to deserving students at the University level in environmentally related fields of study.

Administration:

Primarily a volunteer organization, the office staff consists of a full-time secretary/coordinator and a part-time Project Director for variously funded projects. In its environmental clearing house function, the CEC processes hundreds of telephone inquiries on environmental issues from the general public and acts as a reference source for all its member groups. The members of the Board of Trustees of the Citizens' Environmental Coalition, many of them also holding leadership positions in member groups, provide the nucleus for the CEC's "raison d'etre": informing people about ecological problems and helping to seek viable solutions. The CEC's Speaker's Bureau provided qualified speakers on a variety of environmental subjects including the CEC itself, its history and its goals.

Funding:

The CEC is funded through various sources - memberships from individuals; member organizations; corporate funding; foundation and federal grants. Corporate support and assistance has been received from CRS Design Associates, Inc., Exxon Corporation, Reynolds Metals Company, Rives, Dyke/Y & R Inc., and others. Grants have been received from Citizens Who Care, The Hershey Fund, The Maperus Trust, The Moody Foundation, San Jacinto Lung Association and others. Federal grants have been received from the Environmental Protection Agency and the Department of Health, Education and Welfare.

Member Groups:

Allied Civic Clubs of Houston; American Association of University Women American Institute of Architects; American Institute of Chemical Engineers; American Society of Landscape Architects; Armand Bayou Nature Center, Inc.; Bayou Preservation Association; Billboards, Ltd.; Citizens for Hike and Bike; Citizens Who Care; Common Cause; Galveston Bay Conservation and Preservation Association; Garden Club of Houston; Greater Houston Civic Council; Harris County AFL-CIO Council; Houston Audubon Society; Houston Geological Society; Houston Junior Bar Association; Houston Sportsmen's Club; Houston Urban Bunch; International Longshoremen's Association; League of Women Voters of Houston; National Health Federation; North Harris County American Association of University Women; Oil, Chemical and Atomic Workers International Union, AFL-CIO; Planned Parenthood of Houston; Rice Design Alliance; Rice University Students' Association; River Oaks Garden Club; San Jacinto Lung Association; Sierra Club, Houston Regional Group; Soil Conservation Society of America; University of Houston Recycling Center; University of St. Thomas Recycling Center; Zero Population Growth.

(October 1976)

COMMUNITY SYMPOSIUM

Beverly S. Smrha, Comprehensive Planning Director; League of Women
Voters of Houston, 614 Harold, Houston, Texas 77006; (713)529-3171.

Houston is the fastest growing metropolitan area in the country today. It is an enormous, sprawling urban center with boundless zest and a vigorous economy. How Houston and Harris County use the remaining land and manage their natural resources will determine whether this area can be saved from many of the environmental ills so common to other metropolitan areas.

Decisions are being made daily in urban planning, air quality, solid waste management, water quality, energy, parks and recreation, transportation, housing and commercial development by business, government and the private citizen. All these decisions impact on our environment; therefore it is important that all the decision-makers involved have an open and continuing dialogue with each other. These decision-makers include industrialists, land developers, bankers, professional architects and planners plus the individual citizen building his own home as well as city councils, county commissioners court, city and county pollution agencies and flood control districts. Not all of these individuals and government bodies agree on the criteria to be used to make these decisions. It is most important that each segment of the Houston area community understand each others' different perspective and concerns if Houston's healthy economic state and desireable quality of life are to continue.

It is to this lack of communication that the League of Women Voters of Houston wishes to address itself. The LWV plans to work with community leaders representing a broad cross section of the public and private sectors of Harris County to design a Community Symposium on the subject of environmental planning. The purpose of this Symposium would be to establish a continuing dialogue among the participants.

The format of this Symposium is designed to create an atmosphere which will encourage frank discussion of this highly controversial subject:

> Two keynote speakers opening the meeting should represent widely differing viewpoints and have a reputation of credibility within their respective fields. After the two speakers have addressed the general assembly, the 300 participants will divide into small discussion groups of 50 each. The discussion groups will each have a panel, again representing various points of view, and a moderator chosen from the Harris County community.
>
> Topics that could be discussed by the small groups are: private property rights and the public interest; transportation planning and its impact on land development; planning for utilization of flood plains; federal government regulations that impact on local land use decisions; cost/benefit analysis of land development; and ultimate growth potential. It is imperative that the League of Women Voters not plan the specific discussion topics prior to the inception of the project. For the Symposium to be successful as a true dialogue among the many points of view, all participating interests must be involved in the planning and decisions regarding the specific areas of concern that should be addressed.
>
> The Symposium will conclude with a final speaker who will attempt to bring all perspectives into view and demonstrate the concurrence of the goals of the participants.

Working relationships and mutual respect arising out of this Symposium project should enable this kind of dialogue to continue into 1977 using private local financial resources.

The educational products of the project will be a LWV publication, a resource packet and an audio-visual slide-show. The LWV publication is to be a reference guide to planning in Houston: planning done by all levels of government and by the private sector in the areas of land use, air quality, solid waste management, water quality, energy, parks and recreation, transportation and housing. The resource packet that will be mailed to all Symposium participants prior to the meeting will include both the above mentioned LWV publication and other materials that participating interests have determined to be pertinent. The slide-show will be an audio-visual representation of the highlights of the Symposium with emphasis on the subject matter presented therein. The resource packet and/or the slide-show will be made available at no cost to community organizations, civic groups, high school and college classes in Harris County.

The direct beneficiaries of this project will be the 300 participants and the thousands of people who will make use of the printed materials and the slide-show. The indirect beneficiaries will be the nearly two million residents of Harris County.

No federal funds will be used to provide transportation, food or lodging for the conference participants.

The League of Women Voters is a non-profit non-partisan organization that has a long standing role of providing a forum for the discussion of ideas. The LWV is in a particularly good position to initiate a community dialogue to illuminate land use and environmental planning issues in a rational manner. With its diverse program interests including both economic and environmental issues, the LWV of Houston is the logical catalyst for greater public discussion. Since the LWV is a volunteer organization made up of competent and committed members, there is a significant multiplier effect on the amount of funding that will be provided for this project. The work contributed by the volunteer members will enable the LWV to stretch the funds provided. The LWV is unique due to the broad range of expertise of its members. This resource aided by a federal grant can expect to accomplish the goal of creating a dialogue on this most controversial subject.

---Beverly S. Smrha
October 1976

PROJECT ENVIRONMENTAL STUDIES PROGRAM

Dr. Billy N. Pope, Environmental Project Director; Mike Owens, Environmental Project Facilitator; Educational Personnel Development, Consortium D, P.O. Box 1300, 400 East Spring Valley, Richardson, Texas 75080; (214)231-6301.

Project Environmental Studies Program (E.S.P.) is a joint effort of Educational Personnel Development Consortium D and Richardson Independent School District in the development of a model of teacher education in-service in environmental education and curriculum resources to meet the needs of their students. The Project consists of three aspects: an in-service workshop, ten days of teacher in-service, and secondary curriculum resources.

The initial thrust of the program was a three-day summer in-service using representatives of state agencies and a project-funded consultant at an outdoor site owned by the school district. The use of state personnel explaining simple experiments and field studies that may be done was supplemented with an orientation to the Outdoor Biological Instructional Strategies (OBIS) materials available to teachers. Teachers participated in OBIS as well as indoor and outdoor activities directed by State water, soil, wildlife and forestry personnel. The project also secured a number of free materials that were given to teachers.

The second component is designed to be ten days of intensive in-service in the development of validated curriculum in environmental education. The core of 24 teachers, grades 1-12, were volunteers from the summer workshop and other activities. The model is to identify what method is best in allowing teachers to validate and develop materials. Successful components tested to date include the inviting of publishers to speak briefly, one at a time, and explain materials they have available in environmental education. This allows for some interaction and teachers can spend part of the day gaining insight into the commercial material.

The most benefical material so far as immediate use in the classroom moving to the outdoors has been the OBIS. Participants were able to select from the two sets of materials and have their students actually involved in doing the activity. Students and teachers are alike in their feeling toward the positive learning experience provided by OBIS.

The project format was designed such that participants selected groups to develop a curriculum component. Suggestions directed the participants to try and meet their immediate needs in terms of product. The product is to be field tested by the developers, revised, and retested as necessary before being made available to other teachers as a resource.

The ten days of workshops are spread out over the school year and no two days occur within any one week. Instruction is provided in the development of learning games, simulation games, and development of an outdoor school site.

As result of local interest in expanding environmental interaction by students, Plano Independent School District has contacted E.P.D. to install the ESP Model with their teachers in January 1977. Discussion is currently underway to design a comprehensive goal and need outline for guidance of the ESP Model in Plano.

Project E.S.P. is projected to provide the resources purchased for evaluation to the four service centers and any other requesting party for a two-week loan. School districts in the consortium area can ask for consultative services in the areas of environmental curriculum planning and outdoor site development.

---Mike Owens
November 1976

CAVE TOURS

Robert L. Randall, Chief Interpreter, Timpanogos Cave National Monument,
RFD 2, Box 200, American Fork, Utah 84003; (801)756-4497.

The NESA program at Timpanogos Cave National Monument is an integral part of our cave tour program. In essence our NESA tours are regular cave tours which are geared toward science students. We place some emphasis on the comparison of the cave to the world. We suggest that the caves are microcosms and that the limitations we so easily see in the cave exist in our local community.

The tours are scheduled as teachers request them, within carrying capacity restrictions. The program primarily falls during the month of May just after the cave opens up for the year. We serve up to ten school districts, including one regular group from Wyoming. The grades range from third grade to twelfth grade.

---Robert L. Randall
December 1976

SUMMER ENVIRONMENTAL AND RECREATIONAL CAMP; EXTENDED DAY ENVIRONMENTAL CAMP

Sadie H. Rizzo, Program Director; Elementary Supervisor, Carbon County School District, Price, Utah 84501; (801)637-1732.

Objective:

Teachers will be more knowledgeable about how to work with students in camping situations. They will have more activities which will involve students in their appreciation for the great outdoors.

The students will learn to live better and a new relationship will be developed between them and their teachers in a setting other than the regular classroom.

Target Audience:

Summer - 8 weeks for 5th-6th grade boys and girls.
Extended Day - (1-1½ days) for a class of any grade level. Can be overnight.

Funding Sources:

Extended year funds from State; Tuition Fee.

Activities Implemented:

An eight week summer camp was provided at Clear Creek, four weeks for a group of girls, four weeks for boys.

A female teacher has been a trainee during the four weeks with girls.

So far this fall, three schools have been to Clear Creek Camp under the direction of the regular teacher and with the regular classroom students.

Consultants from various agencies and the community have been involved with the activities.

Findings (Results):

Teachers have been trained under the supervision of two directors to assume responsibility for camping experience.

Students have shared responsibility for facilities, helped with food preparation, and clean-up. Many have lived together away from home for the first time.

This is an experience for both student and teacher away from the school setting. Principal, teacher, and students see each other in a different light. Leaders or students shine here who do not in the classroom.

This first-hand meaningful experience with nature carries more depth to classroom activities.

---Sadie H. Rizzo
October 1976

1973 DIRECTORY REFERENCE: pp. 593-594

THE MILL HOLLOW CENTER

Ronald S. Beckstrom, Director; The Mill Hollow Center, 340 E. 3545 S.,
Salt Lake City, Utah 84115.

Purpose:

The Center, located in the Uinta National Forest near Woodland, Utah, is an alpine residential facility designed to extend the regular classroom experiences and activities for students grades 4-12 and for educators and community groups at various ages and assignment levels.

Objectives:

Each student at Mill Hollow should have opportunity to gain a variety of outdoor experiences. These include:

1. Personal observation of many living things in a natural environment.
2. Increased understanding of our natural resources, their management and conservation.
3. Improvement of the natural environment through service projects approved by the Forest Service.
4. Aesthetic experiences that enhance an appreciation for life and for living.
5. The occupation of learning as a prime human endeavor.
6. Studying each animate or inanimate object as a component of an inter-acting environment.
7. Experiences in studying various subjects in cross-section as a means of reconstructing the sequences of long-term events.

Target Audience:

All district students, grades 4-12, staff and interested community groups. Annual resident participation exceeds 5,000.

Methodologies:

Various, largely oriented to outdoor activities using a large variety of natural resources and settings.

Materials Produced:

Film, color, silent, 16mm.; 35 mm slides, various subjects relating to natural sciences, art; descriptive brochure (color) of general programs; teacher's resource book (restricted to in-service teachers); program description hand-outs, various subjects.

Funding Sources:

Almost entirely district/student funds.

Project/Program Evaluation:

None published.

Plans for the Future:

Permanent status since 1964, continuation at present magnitude.

---Ronald S. Beckstrom
October 1976

1973 DIRECTORY REFERENCE: pp. 597-598

VERMONT INSTITUTE OF NATURAL SCIENCE

Sarah B. Laughlin, Director; Vermont Institute of Natural Science,
Woodstock, Vermont 05091; (802)457-2779.

Overall Purpose:

To encourage the people of Vermont in their curiosity about the natural world; to investigate and publicize the special natural features which make Vermont unique; to educate toward the best use of Vermont's natural resources by man; to point out man's role in conserving and preserving the environment.

Specific Objectives:

1. Environmental Learning for the Future (ELF) program in fifteen (currently) public elementary schools: VINS staff gives monthly workshops for community volunteers and some teachers who take the children outside monthly for a program in environmental education.

2. Teacher Environmental Learning (TEL): VINS staff gives teacher workshops upon request in outdoor, hands-on approach to environmental learning.
3. Short natural history courses and lectures for the public, including field trips.
4. Yearly Vermont State Bird Conference.
5. Bird banding station (largest inland station in New England): manned April through October, data being computerized.
6. Atlas five-year Bird Breeding Survey: to begin summer of 1977.
7. Research on the ferns of Vermont: in progress, to be published.

Target Audience:

All Vermonters, with focus presently on elementary school children.

Methodologies:

Outdoor, hands-on approach to learning about natural history and environmental education; acclimatization.

Materials Produced:

1. Newsletter to members including natural history articles.
2. Yearly magazine Vermont Natural History (currently the only magazine published on Vermont natural history).
3. Quarterly Records of Vermont Birds - from sightings of contributors, edited by experienced birders.
4. Teacher and volunteer workshop information and activity sheets given to those involved in ELF program.
5. Natural history slide shows with scripts - in process of duplicating for sale and rent.

Funding Sources:

VINS in non-profit, funded solely by memberships and private contributions.

Project/Program Evaluation, Citations of Published Reports:

Distinguished Service Citation from the Governor's Committee on Children and Youth for ELF program, May 1976.

Plans for the Future:

ELF programs and short natural history courses for the public in more communities throughout Vermont, radio and television programs on environmental education.

---Sarah B. Laughlin
November 1976

1975 DIRECTORY REFERENCE: pp. 368-369

DEPARTMENT OF CONSERVATION AND CULTURAL AFFAIRS, ENVIRONMENTAL STUDIES PROGRAM 1976-77

Mrs. Doris Jadan, Environmental Education Specialist, P.O. Box 64,
Cruz Bay, Virgin Islands 00830.

A Legislative grant of $23,000 for Fiscal '77 to the Department of Conservation and Cultural Affairs has been approved by the Governor to insure continuation of the Environmental Studies Program (E.S.P.) for forty elementary classes in the St. John-St. Thomas School District.

The Environmental Studies Program for Virgin Islands elementary pupils is the first and only continuing program of environmental education anywhere in the Caribbean. Some 8,500 pupils have participated in the E.S.P. over the past six years.

Interested teachers from grades 1-6 and special education classes will be approved by principals and the Environmental Education Specialist directing the program for the Department of Conservation and Cultural Affairs, Mrs. Doris Jadan. Mrs. Jadan has taught in the Virgin Islands since 1955 and initiated the Environmental Studies Program in 1970.

Each teacher in the E.S.P. for 1976-77 is expected to set up an environmental study area on school grounds or within walking distance of school, using techniques developed in the National Environmental Study Areas (NESA's) in the V.I. National Park, at Reef Bay, Annaberg, and Salt Pond-Drunk Bay. In this way, all students in each school will benefit from the program and be able to develop projects of their own as a spin-off from the E.S.P.

Teachers selected for the E.S.P. are required to attend one of four scheduled two-day workshops conducted by the E.S.P. in cooperation with the V.I. National Park.

Over the past six years, E.S.P. lesson plans and activities have been developed as an integral part of the total elementary curriculum. Materials used are local and relevant to pupil needs and interests.

The basic E.S.P. text is A Guide to the Natural History of St. John. This text provides pupils and teachers detailed cultural/natural history information on the three NESA's used as classrooms-without-walls, including illustrated plant and bird checklists.

Two readers for 8-12 year olds, The Adventures of Ivan Environman and The Holiday Adventures of Ivan Environman, have been published for pupil use by E.S.P., Inc., a local, tax-exempt educational organization. The Ivan books include stories pupils helped select. Over 260 Ivan stories have appeared weekly in The Daily News of the Virgin Islands since 1972 as part of a continuing effort to provide West Indian-oriented reading material for the language arts and social studies curriculum.

New lesson plans have been prepared for teachers in the 1976-77 E.S.P. emphasizing critical local options available to the child at home and school as a young consumer. These lessons investigate specifics of solar, wind, and brick oven baking as alternatives to fossil fuels. Hydroponic farming to produce vegetables with one tenth the water used for conventional cultivation will be studied, and small school hydroponic gardens can be built. Working with the Department of Commerce, E.S.P. had developed plans for pupils to demonstrate the ecologic/economic advantage of coping with hard times developed during the years preceding tourism. The interaction of pupils, tourists, and older Virgin Islanders at the Annaberg Living History Program has proved the rewards of this local interaction with tourists.

Five basic concepts, or STRANDS, are used in the Environmental Studies Program to help pupils tie together their observations and discoveries in the program. These STRANDS are: Similarities and Varieties; Patterns; Interactions and Interdependencies; Continuity and Change; and Evolution Through Adaptation. Adventures in Environment books developed by the National Park Foundation have been purchased by the Department of Education to assist teachers in using the STRANDS concepts to integrate their own environmental education projects effectively into daily lesson plans.

Evaluation of the Environmental Studies Program as part of the E.S.P. teacher's daily lesson plans and setting up study areas at or near school will be a continuing process throughout the school year involving principals, Department of Conservation and Cultural Affairs staff, and the V.I. National Park, along with parents and pupils themselves.

For children in the E.S.P., environment means everything surrounding them, plus everything they surround with understanding. E.S.P. classroom and field activities are designed to offer Virgin Islands children the direct sensory experiences and research data necessary for them to make personal, informed choices about the best ways to protect and develop V.I. Human and Natural Resources.

The development of a viable Virgin Islands environmental ethic depends on the educated decisions Virgin Island children make here and now, at home and at school.

The overall goal of the E.S.P. is increased awareness, appreciation and concern by Virgin Islands children for unique but limited resources on which the quality of their lives depends now and fifty years from now.

The E.S.P. Office is located in the Cruz Bay Public Library. Tel: 776-6359.

(October 1976)

1973 DIRECTORY REFERENCE: pp. 604-606

1975 DIRECTORY REFERENCE: p. 112

ERIC DOCUMENT:

The Environmental Studies Program of the Virgin Islands Department of Education. ED 082 977

TURKEY RUN FARM

Carol Lee, Site Supervisor; Anna Eberly, Interpretation Supervisor; Turkey Run Farm, George Washington Memorial Parkway, McLean, Virginia 22101; (703)557-1356.

Group Tours:

Interpretation may include the following subjects as they relate to the particular season and day: Domestic Arts, Kitchen Gardening, Textile Arts, Food Preparation and Preservation, Tobacco and Its Culture, Field Crops, Animal Husbandry and Agricultural Tools. The tour program is extremely flexible and given adequate notification, the farm staff will attempt to mold it to the needs of various curriculums. Taking special note of the unique environment which is Turkey Run Farm, it offers a good learning experience for handicapped groups.

Teachers' Training Workshop:

Once a month, throughout the school year, the staff of Turkey Run Farm conducts a free workshop to prepare teachers and school group leaders to better utilize Turkey Run Farm as an educational resource. It includes discussion of the resource manual about the farm and a second session where participants perform the functions of an interpreter on the farm for one day.

Environmental Living:

This program, which revolves around an extensive coordination between the classroom and Turkey Run Farm, culminates in a first-hand look at 18th century life. After extensive classroom preparation, the students are dressed in the manner of the times and assume roles and activities of the farm family for a 24-hour period. This program is extremely successful in bringing across man's past and present relationship with nature, as well as teaching history through this experience.

Volunteers-in-Parks:

The National Park Service's VIP Program offers volunteers an opportunity to share their skills and talents by participating in the activities of parks across the nation. At Turkey Run Farm, volunteers work in period clothing along with the interpretive staff in presenting the daily life of the pre-Revolutionary farm family. The staff keeps a list of interested persons as the opportunities are limited in number. Specific knowledge of 18th century crafts is welcome anytime.

(December 1976)

COMPREHENSIVE SCHOOL ENVIRONMENTAL PROGRAM

H. B. Lantz Jr., Project Director; Orange County School Board, P.O. Box 349, Orange, Virginia 22960; (703)672-2838.

Environmental education is not just something to be taught and learned, rather it is a way of teaching and learning. That belief forms the basis for operation of Project COMSEP. COMSEP (Comprehensive School Environmental Program), an ESEA Title III project, is designed to give students and members of the community a better understanding of the interrelationships of man and other organisms to their environments and to raise questions of individual and societal culpability in the use and misuse of natural resources. Learning experiences in environmental education are provided for approximately 4,000 students in grades K-12. There are four major components of COMSEP: Environmental interpretation centers, extensive student involvement, in-service training for teachers, and much community involvement. Evaluation instruments administered to participating students and teachers revealed that both increased their knowledge and appreciation of our environments, while teachers showed positive change in attitude and teaching behavior. This program has been well received and supported within the community.

Environmental Interpretation Centers:

Here is one of the focal components in the project which centers on the concept that environmental interpretation should be a form of communication which has to do with explaining the environment in meaningful terms to man - be it the world of nature or certain aspects of natural history or man's history. The designation, development and utilization of six natural habitats located on various campuses have provided a valuable link in the total instructional program. These natural areas are designed to contain elements that will enable students to interpret abiotic, biotic, and cultural phenomena that will assist them in developing awareness, understanding, and possible solutions to environmental problems. These interpretation centers are essential in that students, teachers, and individuals of the community are afforded the opportunity to gain first-hand experiences dealing with various phases of their environments.

Staff Development:

This component encompasses the vital aspect of in-service training for students, teachers, and adults. Numerous in-service sessions and mini-courses have been conducted to implement the instructional program. Self-training packets are being developed for teachers to familiarize themselves with the philosophy, objectives, and concepts of environmental education. Local students, teachers, and the project staff have been extensively involved in the development of curriculum materials.

Instructional Program:

This key component is an interdisciplinary format dealing with a K-12 scope and sequence. Sequential grade level curricular materials have been developed for each of the K-5 grades, middle school grades, and high school level. Two interdisciplinary, year-long programs are taught at the high school level, Ecology and Environmental Problems. Participating students have carried out significant local environmental action programs that range from conducting air and water quality surveys to monitoring automobile exhausts. Additionally, students have designed and assisted in the construction of several environmental interpretation centers.

Curriculum Materials Development:

An interdisciplinary guide for each of the elementary grades (K-5), twenty unit guides for the middle school, an interdisciplinary program for the high school, a Student Affective and Cognitive Testing Design, a Teacher Affective and Cognitive Testing Design, a Teaching Behavior Analysis Design, three local Nature Trail Guides, a Materials and Media Resource Guide, twenty-five local audio-visual programs, a project newsletter, project pamphlets, simulation games, and "Ecology Tips" for weekly broadcasting on our local radio station represent a summary of the major project-produced materials.

Dissemination:

A comprehensive local, state, and national dissemination program is an integral part of this project. Through the assistance of many local, state, and national organizations, significant project activities have been transferred and incorporated into environmental programs in other geographic areas.

The newsletter "Oikos" has experienced an extensive program of distribution on not only a local level but also on a state level.

Community Involvement:

Environmental awareness and educational programs are contingent upon community receptiveness to these programs. Since attitudes can be changed through awareness and involvement, it is imperative that parents, as well as students, display positive environmental attitudes. To these ends, an integral part of Project COMSEP is total community awareness and involvement.

The community has been an active participant in planning and developing environmental interpretation centers. Through participation in such projects as monitoring automobile emissions, recycling Christmas trees, recycling of paper, and attending ecology education sessions at night, the citizens of Orange County have demonstrated their overt support of environmental improvement efforts.

This component also focuses on community education through illustrated talks, production of popular publications, and a community recycling center.

Evaluation:

In order to maintain the most effective instructional program, continuous evaluation assumes a significant role in the environmental education program; only through a thorough examination of the present can a course for the future be charted.

Evaluation procedures consist of pre- and post-tests designed to measure environmental knowledge and attitudes of students, teachers, and adults.

Subjective criteria will also be used to evaluate the program. Since the program is applicable in grades K through 12, a significant amount of feedback from parents must be considered. Subjective evaluation is also provided by community representatives, club leaders, and others who visit the environmental interpretation centers and have a knowledge of the program.

The ESEA Title III "Comprehensive School Environmental Program" was implemented during the years 1973-1976 in grades K-12, encompassing all of our public schools in Orange County. In May, 1976, the activities and services of the project were nationally validated for dissemination to other school systems throughout the country. In addition to national validation, individual project components received recognition on both a state and national level during the tenure of the program. It was for these reasons that Orange County's program of environmental education was funded for national dissemination by Title III, ESEA/Title IV-C for 1976-1977.

--H. B. Lantz Jr.
November 1976

PRINCE WILLIAM FOREST PARK

Audrey Calhoun, Park Ranger, Prince William Forest Park, P.O. Box 208,
Triangle, Virginia 22172; (703)221-7181 or (703)221-2420.

Prince William Forest Park has three National Environmental Study Areas. The overall purpose of our environmental study areas is to make students aware that they, as the highest intelligent form of life, are not supreme; that they affect other forms of life around them and are affected by those same forms of life, favorably or unfavorably. An understanding of this relationship can only bring about an awareness of our environment that seeks to preserve it in totality.

The Davis Farm Site is aimed at students grades two through seven. A trail leads through the area and at different points along it, a variety of activities can be carried out. As a farm the site was used and abandoned and plants began to come in naturally. The area shows various stages. Transects, age, size, and height of plants, depth of ground litter, types of plants found in different environments, food chains and the amount of light entering the forest are all experiments used in the site.

The Pyrite Mine Site is aimed at grades six through twelve. The site is an abandoned pyrite mine last used in 1920. As a mining site it shows the need for natural resources and the effects of obtaining the resources on the environment. Experiments are conducted on the condition of the life found in the stream and the condition of the water itself since each hard rain washes the soil from the mine into the stream. Experiments on the surrounding barren land, testing type plants, soil pH and growing condition are carried out. The area, however, is left to teacher and students to set up hypotheses and experiment to test the hypotheses. It is a very flexible site.

The Oak Ridge Beaver Dam Site is aimed at students grades three through twelve. The area shows succession in various stages, evidence of man through the remains of a farm site, road and fence. A burned-over area shows the beginning stages of succession. Three beaver dam sites along the trail point out the effect of wildlife on the land as well as providing a different habitat for plants and animals. Stream ecology is also displayed. Various techniques are used to explain the site. A trail through the site with points helps to explain the site. The site is flexible and a teacher may develop his/her own program for the site.

Manuals for each of the sites are in the process of being developed. Teacher workshops are an integral part of the program.

---Jim R. Fugate
December 1976

JEFFERSON NATIONAL FOREST YOUTH CONSERVATION CORPS

Robert W. Schramek, 1976 Camp Director; Route 2, Box 379-C, Wise, Virginia 24293; (703)328-2931; Charles J. Saboites, District Ranger; Box 1069, Wise, Virginia 24293.

The report of the Jefferson National Forest Youth Conservation Corps program in the 1975 edition of this Directory is still essentially accurate in general description of purpose, objective, recruitment and methodologies.

The 1976 camp was eight weeks, from June 20 to August 13th. We had thirty-two enrollees this year, sixteen boys and sixteen girls. Six of the enrollees were minorities.

Of the nine staff members, three were professional teachers from local school systems, two were Forest Service employees and four were college students. Staff training was expanded and further formalized this year to include environmental education field exercise techniques and sessions on transactional analysis, to improve communications skills of staff.

The camp is still utilizing the Clinch Valley College housing, and has successfully capitalized on the opportunities that this situation provides. Emphasis is given in investigations of the local geology, economics and ecologic impacts of the surface coal mining industry.

As in the past, printed materials used for environmental fields exercises are available through our Forest Service Regional Office in Atlanta, Georgia.

Program evaluation and attitude surveys of the Nationwide YCC program were conducted again by the University of Michigan. We have not seen this year's report yet.

---Charles J. Saboites
October 1976

1975 DIRECTORY REFERENCE: pp. 370-372

OF DEMOCRACY, TRUTH, AND COURAGE---STUDIES OF ENVIRONMENTAL ACTION

Dr. Thomas Tanner, Cispus Environmental Center, Randle, Washington 98377; (206)497-7131; Dr. Kenneth Hammond, Central Washington State College, Ellensburg, Washington 98929; (509)963-3681.

Summary:

Several years' writing and classroom testing have now culminated in the publication of a set of case studies of citizen action, appropriate for use mainly at the high school level. An Instructor's Guide, Student Edition, and packet of illustrative photos are available. These may form the basis for a special one-semester course, or provide supplementary materials in a variety of courses.

Rationale:

Citizen action is necessary to the solution of our nation's environmental problems, local and national, immediate and long-range. Citizen action led to the formation of our national park system, the Environmental Protection Agency, the concept of the environmental impact statement, and other environmental safeguards. Citizen action halted the Miami jetport, certain dams on the Colorado, and similar questionable projects. Citizen groups have facilitated industry or public agencies in such positive steps as Union Camp Corporation's gift to the nation of a 50,000 acre wildlife preserve in the Great Dismal Swamp. In a very real sense, the essence of American participatory democracy is illustrated by local and ad hoc citizen conservation groups, as well as by such national and/or old line organizations as the Nature Conservancy, the National Audubon Society, The Wilderness Society, and others.

Unfortunately, there is much in our culture which conveys the impression that one is doing his duty as a citizen if he merely votes; this myth is strongly implicit in the mass media around election time, for instance. Teachers and the schools are not all prepared to overcome this failure in cultural transmission.

The concept of participatory democracy is nowhere better exemplified than by the work of citizen conservation groups. High school students should have the opportunity to learn about such groups in some detail, both as to their raison d'etre and modus operandi. An obvious vehicle is the case study approach to specific environmental issues. This can be a superior form of environmental education as well as a superior form of citizenship education.

Materials and Methods:

The Student Edition is composed principally of reprinted, non-technical magazine articles. These deal with citizen action on six issues: nuclear power; stream channelization; Glen Canyon Dam and Lake Powell; overgrazing of public lands; agribusiness vs. the family farm; and the preservation of a portion of the Great Dismal Swamp. The articles were chosen on the criteria of readability, comprehensiveness, and literary merit (i.e., humorous, lively, or beautiful prose were chosen.

The Student Edition is printed on Mazer Spirit masters, so that the teacher or his assistant may run off many copies at low cost on any school ditto machine.

The Instructor's Guide consists of several parts. There is a unit guide for each case study. A unit guide typically contains most or all of the following elements: discussion items, with necessary background information; a simple simulation which can be performed only upon the students' having read the reprints; names and addresses for selected free and inexpensive films and other audiovisuals applying to the case; names and addresses for selected printed materials.

The Instructor's Guide concludes with three features which apply to the case studies as a group: a set of overall wrap-up discussion items; an original Planet Planning activity; a selection of magazine reprints which give the teacher additional background information over and above that provided by the reprints of the Student Edition.

The materials are based upon certain assumptions about the teacher's classroom procedures: that most of the students can read non-technical material written at the eleventh or twelfth grade reading level that some work will be done in small discussion groups, in which non-readers can be "carried" somewhat by readers; that both sides of issues will be examined. The reprints tend to be by and about the citizen conservation groups; many of the recommended free materials are from their adversaries.

Although the issues were current as of 1976, they are not meant to be studies of current issues as such. Rather, they illustrate political processes and ethical dilemmas which, it is hoped, will make them as useful in 1984 or 2000 as in 1976.

Availability of Materials:

Of Democracy, Truth, and Courage: Studies of Environmental Action. Contents - Packet of captioned photos. 67-page Student Edition printed on Mazer spirit masters. 76-page Instructor's Guide.

Available for $24.95 postpaid from National Audubon Society, Educational Services Division, 950 Third Avenue, New York, New York 10022.

Funding:

The project was supported by grants from the U.S. Office of Education, the National Audubon Society, and the POINT Foundation.

---Tom Tanner
October 1976

1973 DIRECTORY REFERENCE: pp. 622-623

1975 DIRECTORY REFERENCE: pp. 116-119

ERIC DOCUMENTS:

1. Outdoor Recreation Activities at Cispus. ED 085 163
2. Humanized Teacher Preparation at Cispus, A Compendium of Ideas on Teacher Preparation and Evaluation. ED 089 951
3. Manual for CISPUS Evaluation Workshop. ED 104 634
4. CISPUS Evaluation Kit for Cispus Preparatory Workshop. ED 104 635

SURVIVAL IN OUR ENVIRONMENT

Jerrold W. Manley and Richard B. Wallen, Project Leaders; Harvard Elementary School, The Franklin Pierce School District No. 402, Pierce County, 315 South 129th Street, Tacoma, Washington 98444.

Funding:

A grant awarded to Harvard School under the provisions of the Environmental Education Act P.L. 91-516, by the United States Department of Health, Education, and Welfare.

Schedule:

The actual project will run from July 1, 1976 to June 30, 1977.

Major Goals:

1. To structure activities during the year which help each student to learn environmental survival skills.

2. To integrate a program of environmental studies into the regular school curriculum through the following:

   a. Providing training and other support for teachers.

   b. Preparing an environmental source book for use by people in the school and community. It will list environmental study areas within 20 miles of school where students can be taken for special study projects. It will also list community information sources where consulting help might be obtained (such as classroom speakers, etc.)

   c. Developing Learning Activity Packages (LAPS) which can be used by students in grades one through six for work on the environmental curriculum.

3. To design and build an ecological study area on a $1\frac{1}{4}$-acre of unused school district land at the back of the Harvard School property. It will be partly fenced to separate it from the rest of the playground. The study area will be used by adults and children, both during the day and after school.

4. To organize a community-school education program for adults which offers classes, seminars, and other experiences in environmental studies so that the program extends from the school into the community.

(October 1976)

RESOURCE MATERIAL DEVELOPMENT

Robert R. Robinson, Radio Operations Manager, WVPB (FM) Radio, P.O. Box AH, Beckley, West Virginia 25801; (304)255-1501.

A grant was awarded in June 1975, under P. L. 93-278. However, Mr. Robinson has indicated that WVPB (FM) had to refuse the grant.

(November 1976)

TREE SENSE

Ms. Loa Martin, Program Supervisor; Children's Museum of Sunrise, 755 Myrtle Road, Charleston, West Virginia 25314; (304)344-8035.

Overall Purposes: A counter-balance to man's possessive attitudes toward the natural resources, beginning with the young student.

Specific Objectives: Understanding the interdependence of all living things, awareness of the environment.

Target Audience: Second and third level students in all the county's school system.

Methodologies: Presented in the student's classroom, utilizing the school yard by staff and trained volunteers from the museum.

Materials Produced: Original song, student work sheets, teachers packet, graphic art, educational television tape.

Funding Sources: Junior League of Charleston, Inc. and Greater Kanawha Valley Foundation.

Project/Program Evaluation: Evaluation forms filled and returned by teachers and principals.

Plans for the Future: Follow-up for fourth, fifth, and sixth levels.

This is an on-going program requested by the teachers. It is in the third year. The program goes out to four classrooms each week.

---Loa Martin
October 1976

1973 DIRECTORY REFERENCE: pp. 628-629

WOODLANDS INSTITUTE

Michael Meador, King Seegar, Daniel Taylor-Ide, Jennifer Taylor-Ide, Daniel Terry, and Laura Wray, Co-directors; Thomas B. Eastman, Chairman, Board of Trustees; Spruce Knob Mountain, Cherry Grove, West Virginia 26803; Phone Circleville, West Virginia, Ring Down Number 6F2.

Overall Purpose: Develop the process of beyond-the-classroom education.

Specific Objectives:

1. Develop the potential of the out-of-doors as a classroom.
2. Heighten students' and teachers' awareness of the educational potential of the natural environment as a complement to human-made environments.
3. Blend the learning process with the living process for mutual enrichment.

Target Audiences:

1. Classes of elementary and secondary school students
2. College and graduate students
3. Families
4. Low income Appalachian children

Methodologies:

We use an action-reflection model, taking classes outdoors for study cum adventure experiences, and then breaking into small discussion groups to reflect on the experiences. All courses combine affective and cognitive learning in the same experiences.

Plans for the Future:

1. Publish the results of several years of informal research on methods of using the out-of-doors as a classroom.
2. Place greater emphasis on teacher training to promote beyond-the-classroom education.

---Jennifer Taylor-Ide
November 1976

1975 DIRECTORY REFERENCE: pp. 373-374

OPENING THE OUTDOORS TO LEARNING

William E. Phillips, Project Director and Director of Curriculum and Instruction; Kenneth R. McDaniel, Principal; Philippi Elementary School, Barbour County Schools, Philippi, West Virginia 26416

Overall Purposes:

The purpose of this project is to develop an inquiry/discovery learning curriculum in natural science at the elementary level. The curriculum encompasses the natural outdoor setting at the school and provides the teachers and students with the opportunity to expand the learning process into an environmental setting which is typical of the concepts they are studying.

Specific Objectives:

1. To involve students and teachers in exploration and discovery of the natural environment leading to an in-depth study of the natural science areas of water life, weather, plant life, animal life, topography and soil study as a part of the elementary school curriculum.
2. To provide an outdoor learning area to be used for discovery learning in science by elementary school students.
3. To provide opportunities for independent study projects in natural science for gifted elementary school students.

4. To provide for and increase student knowledge of ecology and the interrelatedness and interdependence of the ecological system.

5. To preserve and protect a natural area of the school grounds for use as a study area for immediate and future use by the community and students.

Target Audience:

Target audience includes the thirty-six teachers at Philippi Elementary School; the seven hundred and fifty K-5 students at Philippi Elementary School; and all elementary students and teachers in Barbour County.

Methodologies:

The outdoor classroom and lab will consist basically of a trail with several study areas. The trail will begin at the south end of the school parking lot, cross Shooks Run and make a loop in a southeast direction returning to the Shooks Run crossing. Trail construction will consist of logs or cut timbers for form to hold a gravel base covered with bark chips.

The first study area will be a birdfeeder. It will be a 10'x10'x7' building with the wall facing the school. The wall will be concave with a one-way glass window. To complete the outside, it will have a feeding table attached to the building under the window four feet above ground level. There will also be a birdbath with dripping water located in front of the table. The interior of the building will have carpeted floors, padded benches (arranged in a semicircle) and acoustic tile on ceiling and walls to reduce noise. The birdfeeder area will be screened from the trail by a conifer and rhododendron planting.

A combination weather and air pollution station will be located across from the birdfeeder. There will also be a sundial in the same area.

The trail will then cross a bridge over Shooks Run. The bridge must be approved by the Soil Conservation Service and constructed so that it will not block the channel.

The first study area after crossing the bridge will be a dugout type pond with an irregular shoreline and an island. Construction will meet the standards and specifications of the Soil Conservation Service. The water supply for the pond will come from the pipe running from the C. A. Dyer farm to Shooks Run.

After circling the pond, the trail leads to the woods where the next stop is a semicircular eight-foot-high tight board fence. This will serve to reduce the noise level coming from school, highway, and houses in the Mansfield area. Inside the fence an amphitheater bench arrangement can be used as a listening post with a "sounding ear" or can be used for lectures and instruction.

At this point the trail enters the woodland study area. The trail winds among the trees for study of the native vegetation.

At the end of the wooded area there will be a permanent soil profile study pit. The pit will be dug into parent materials. The two sides and floor will be cement. The floor must have a drain. The front will be cement steps and the back wall will be clear plexiglass. A four-foot wide cement cap will be placed around the pit with tile drainage to remove ground water.

The lower end of the property will be filled to create a marsh in the area which is already wet. With introduced plants the area can be used to study plant succession and bog life. To cross the marsh the trail will be a boardwalk.

At this point the trail turns back toward the school. This open field area will be planted in plots of various types of grasses and legumes.

Shooks Run as well as the pond will be used for water study. A ramp will be built on a 4:1 slope down to the bottom of the Shooks Run Channel. The corners where the ramp and channel meet will be riprapped according to Soil Conservation Service design.

The last study area on the south side of Shooks Run will be the horticulture study area. This will be a garden located on the slightly raised area just below the pond.

To complete the outdoor classroom and lab a small greenhouse will be constructed next to the parking lot.

Materials Produced:

Eleven learning areas are currently identified in the project. A curriculum unit has been developed for each of the following areas: greenhouse, birdfeeder, weather station, pond, listening post, woodland study, soils study, marsh, grass and legumes study, water study and horticulture study.

Funding Source:

1975-76: ESEA Title III, $6,000.
1976-77: ESEA Title IV-C, $6,000.

Program Evaluation:

Evaluation will take place in FY'77 and results will be disseminated in accordance with the ESEA Proposal.

Plans for the Future:

The scope of the project will be broadened and the area will be made available for utilization by other schools.

---William E. Phillips
October 1976

OUTDOOR SCIENCES - AWARENESS AND APPRECIATION

Richard H. Beck, Project Director; Doddridge County Board of Education, West Union, West Virginia 26456; (304)873-1169.

Need Assessment: The Doddridge County School System, a rural West Virginia District, consists of a kindergarten-grade eight organization for youngsters prior to attending the county high school (9-12). The elementary schools (10) are scattered throughout the county and are small student-populated, two, three, and four classroom schools, the exception being West Union Grade School. West Union, the county seat, has a larger population and the school has individual rooms for each grade.

Each school staff has an extremely difficult task in attempting to meet the educational basic skills of the youngsters, many of whom are educationally, culturally, and economically disadvantaged. This problem is compounded further when they are grouped with two or more grades in one classroom. With the many demands on an individual teacher, science is the subject area most often neglected, as test results from SCAT tests indicate. Not only are the SCAT results in science low for Doddridge County elementary students, but under the category of student interest, science received the lowest response.

Science instruction in grades K-8 has been a traditional textbook approach with little or no experience for teachers and students to observe the outdoor world of nature. As a consequence, most elementary teachers need expert aid in developing a science curriculum that incorporates the great outdoor laboratory that exists within West Virginia.

Overall Purpose: The purpose of this program is to develop a science program that will inspire youngsters to become aware of, to appreciate, and to understand the wonderful world of nature that surrounds them every day of their lives. This will be accomplished by taking the children into fields, forests, and streams to learn what beauty exists, the fragility of nature, the interdependency of the various forms of life, and how to live with the outdoors and not destroy it. It is hoped that an offshoot of this program will be to create an interest in all the sciences. As we know now, by the time most students reach 9th grade, they are "turned off" with science.

The program is also intended to help the teachers in science education. If a teacher desires private instruction or a group of teachers want to get together for help, all they need to do is request help from the project personnel. The personnel of this program are pledged to go anywhere at any time to accomplish the goal of improved outdoor science education and appreciation.

Specific Objectives:

1. To provide all students grades K-8 with opportunities to study conservation and ecology in the natural world through first-hand experiences outdoors.

2. To develop student awareness of the importance of the role of every organism, including man, in maintaining balanced ecosystems.

3. To promote activities (field trips, camping experiences, etc.) that develop students' appreciation of the beauty of their natural surroundings.

4. To provide directions and assistance to the elementary teachers in the development of an outdoor science program.

Target Audience: Primary target group (students, teachers, administrators, etc.): Approximately 1100 Doddridge County Elementary Students K-8 and 50 elementary teachers located in 50 different schools.

Activities to accomplish the objectives of the Outdoor Science Program are:

1. Depending on age, students will be taken outdoors on various length nature walks to observe nature in its true surroundings.

2. Overnight camping trips are planned, both locally and to farther points of interest such as Spruce Knob, Seneca Rocks, Sinks of Gandy, etc.

3. Movies on science and ecology will be shown.

4. Plans are being formulated to build a greenhouse at each school.

5. Nature centers and nature trails are being encouraged at each school.

6. Birdhouses are available for all schools.

7. In-service programs for teachers have been offered and are being offered in the future.

8. Assistance is available in the form of classroom or individual help to any teacher at any time for the asking.

Fund Sources: In September, 1975, funding was approved by the ESEA Title III office of the WV Department of Education for implementation of the Doddridge County environmental education program "Outdoor Sciences - Awareness and Appreciation." Funds were made available to employ two teachers, one secretary, and to purchase equipment and supplies.

In June, 1976, funding was again approved by ESEA Title IV, Part C (no longer known as Title III) to continue the project. Funds were made available to employ one teacher, a part-time secretary, and to purchase some equipment and supplies. Doddridge County was required to begin bearing some of the costs, such as one teacher's salary and part of the secretary's salary.

Plans for the future: Mrs. James W. Jay, Superintendent of Doddridge County Schools, says that the potential for the Outdoor Science Project to continue after Title IV funds terminate are excellent.

---Richard H. Beck
October 1976

ENVIRONMENTAL EDUCATION PROGRAM

George Emmerich, Resource Development Instructor; Southern Door High School, Brussels, Wisconsin 54204.

The Southern Door County School District was formed in 1960-61. A 103-acre parcel of land was purchased for the purpose of constructing educational facilities. The 103 acres consisted of cleared farm land and 30 acres of climax forest.

In 1969, the school initiated a Pilot Program (Resource Development) through Vo-Ag to provide students with the opportunity to learn about recreation, its environmental impact and economic assets.

The basic rock in Door County is a Niagara Dolomite and in 1970 a cave was discovered in the school forest. The students constructed a log cabin over the entrance of the cave, and the cave is used by all the students of the school district as a study area.

A member of the school board donated a log building to the school in 1975. The building was dismantled and reassembled by the students on the school campus. The building will be used as an environmental center for K-12. The building will contain displays relative to environmental and conservation practice. The displays will be made by the students.

An additional 20-acre tract of land adjacent to the present school property was purchased with ORAP funds. This parcel consists of approximately 8 acres of woods and 12 of clear land. The 12 acres of clear land has been replanted in trees and shrubs for wildlife habitat.

At present, our school forest has more than a mile of trails. The students in the Advanced Biology classes are marking and identifying species of plants and other points of interest along the trail. They are also developing a self-guide trail tour book.

The overall purpose of the project is to provide an opportunity for all students to participate in environmental and conservation practices.

Specific objectives include: tree identification; forest management; soil management; plant and shrub identification; wild animal habitat; soil structures; tapping maple trees and cooking syrup; proper and safe use of chain saws; maintenance and repair of tools; measurements of wood (cord, board feet); land measurements (sections - range and township); horticulture (the students constructed a 20' x 30' green house); landscaping (school campus); zoning (state and local); and pollution.

We endeavor to incorporate the three R's along with the physical participation whereby the student will develop an environmental ethic.

---George Emmerick
October 1976

CHETEK CHAIN OF LAKES IMPACT STUDY

James M. Dennis, Director; Chetek High School, Chetek, Wisconsin 54728; (715)924-3136.

Due to increased interest in the environment by the students and members of the community of Chetek, the program was expanded to include both terrestrial and soil ecology. The specific objectives for the program have not changed, but the means to achieve these objectives have been expanded. Much of the material used in the programs is designed and made by the students involved. This spring (1977) there will be over 90 students involved in the outdoor experience. The terrestrial and soil ecology area of the program is carried out on a 90-acre plot of forest grassland and marshland that surround a small land locked lake. The study area has been designated "The Bailey Lake site". There have been no further funds appropriated other than the normal school science budget.

One of the important reasons the program has continued and been expanded is that one outcome has been the involvement of independent research by students with the presentation of research at various symposiums. For example, three years of study on the behavior of the water flea, Daphnia, concluded in the spring of 1976 with the presentation of a paper written by one of the students in the program. This student received recognition from the E.P.A. for her work and was choosen to appear in a public service commercial for that agency. She also received a full science scholarship to continue her studies in Ecology at Viterbo College, La Crosse, Wisconsin.

In January 1977 a new outgrowth of the program will be started. This will be a ten-week, two-hours-per-week workshop for adults in the community. The program will pivot around environmental awareness and forces of pollution types, energy and wise use of resources and how Chetek is affected by these important environmental problems.

Printed Materials:

1. "The Use of a Field Study as a Teaching Tool for the Better Understanding of the Environment", by James M. Dennis.

2. "Education as a Faciliation - Ecology as a Tool", by James M. Dennis.
3. Guide to the Outdoor Experience in Soil, Terrestrial, and Aquatic Ecology of the Bailey Lake Study Site.

(October 1976)

1975 DIRECTORY REFERENCE: pp. 269-273

TREES FOR TOMORROW FOUR SEASONS ENVIRONMENTAL CENTER

Operated by Trees for Tomorrow Inc., in cooperation with U.S. Forest Service; Gene Wirsing, Trees for Tomorrow Environmental Center, Eagle River, Wisconsin 54521; (715)479-6456.

Trees for Tomorrow Environmental Center is a non-profit organization with a background of thirty-one years' expertise scheduling and programming workshops. Since 1944 more than 125,000 people have studied at this Center under a staff of qualified environmental specialists.

Each year workshops are held for the following schools and organizations:

1. Three-day high school and middle school workshops: 175 schools send over 1,500 students in spring, fall and winter.
2. Environmental Seminars for Teachers: 200 elementary and secondary teachers attend one of the following week-long seminars: Man and the Environment; Ecology; Science; Social Studies. One graduate or undergraduate credit is offered.
3. Wisconsin Department of Public Instruction: Teachers Environmental Fair - 90 to 100 teachers hold a three-day workshop to exchange innovative teaching techniques in the field of environmental education.
4. Wisconsin Newspaper Association: 40 to 50 daily and weekly editors and publishers of Wisconsin newspapers spend a three-day workshop on natural resources, conservation and new developments in environmental education.
5. Career Workshop: 60 high school juniors in the upper quarter of their class come from a three-state area (Wisconsin, Illinois, Iowa) for a week-long workshop on careers in natural resource management and environmental education.
6. Weekend Ecology Workshops: 90 to 120 general public families and individuals attend three two-day workshops on ecology and environmental education.

7. Business and Professional Women's Clubs: 40 to 60 business and professional women from throughout Wisconsin attend a three-day workshop on environmental education.

8. Kiwanis: 40 to 50 Kiwanians from throughout Wisconsin and upper Michigan attend a three-day workshop on man and the environment.

9. Wisconsin Federation of Women's Clubs: 40 to 60 women from around Wisconsin attend a three-day workshop on environmental education.

10. National School of Conservation: 60 adults from across the nation attend a week-long workshop on resources, conservation and environmental education.

11. Printing House Craftsmen: 30 to 50 printers and technicians from Illinois and Wisconsin attend a three-day workshop on environmental education.

12. Absentee Landowners Workshop: 30 to 40 people from throughout Wisconsin hold a two-day workshop on resource management.

13. Cross-Country Skiing and Winter Ecology: 1,000 to 1,200 general public families and individuals from Wisconsin and neighboring states attend two-day workshops on cross-country skiing and winter ecology.

14. Wisconsin Department of Public Instruction: School Administrators: 35 to 40 school administrators hold two, three-day workshops on special projects.

15. Anglers Workshops: 80 to 90 general public families and individuals attend two, two-day workshops on fishing techniques and fish management and environmental problems.

16. Miscellaneous Groups: Numerous other groups request and attend "one-time" workshops on ecology and environmental education.

The workshops bring between 5,000 to 6,000 people to the Center each year for environmental studies. Classes are conducted by the Center Staff: Executive Director, BA psychology, BS forestry; Ecologist, BS biology and general science with a Wisconsin Teachers' Certificate; Resource Specialist, BA sociology, MS resources management; and the volunteer Staff: 100 visiting lecturers representing universities, agencies and industry; 60 coordinators who assist with high school and middle school workshops; 45 field technicians who conduct field demonstrations.

Visiting lecturers speak on specific environmental issues including nuclear power, solid waste disposal, air pollution, and economics in relation to resource use.

Cooperators include: U.S. Forest Service, University of Wisconsin, Department of Public Instruction, Department of Natural Resources, State Soil Conservation Board, industries and nearly 300 other organizations and individuals.

---Gene Wirsing
October 1976

ENVIRONMENTAL EDUCATION IN COOPERATIVE EDUCATIONAL SERVICE AREA #14

Melvin O. Bollom, Agency Coordinator, CESA #14, 1020 Lincoln Avenue, Fennimore, Wisconsin 53809; (608)822-3276.

Objectives of the Environmental Education Project:

1. To develop insight and understandings of current and future local environmental issues.
2. To relate local environmental issues to the larger and more comprehensive state, national and international environmental problems.
3. To establish a means to illustrating via local problems how "personal values" directly relate to the solutions of environmental problems.
4. To create an understanding of the need to relate one's personal activities (actions) to the future of our environment at large.
5. To have a clearly identified program for youth (education) that does have as its goal to restore, preserve and enhance the environment.
6. To have prepared sample lessons available to teachers that are based on behavioral objectives and value development.
7. To develop a clear understanding amongst all teachers and all students what, in reality, environmental education is, what a balanced ecosystem (closed system) is and to relate the need for personal involvement to finding solutions to the crisis of the environment.
8. To have summer and evening classes for "in-the-field" teachers in environmental education with necessary priority, publicity, and involvement.
9. To involve university expertise in C.E.S.A. #14 teacher workshops.
10. To have teachers exposed to the materials, equipment and supplies they can easily incorporate into their classrooms without being environmental experts. This is to be done in undergraduate teacher preparatory programs.
11. To involve all previously self-identified people who had interests, concerns and ideas for environmental education in a manner that will capitalize on their energies and abilities.
12. To have Dave Engelson, a very valued D.P.I. Consultant, called upon regularly. His experience in committee work would insure further success of the committee.
13. To have joint demonstrations and cooperative "fairs" and interrelated in-service programs that illustrate the feature of "interdisciplinary" education.

14. To develop a reality of teachers of different grade levels and subject areas working together toward some common goals.

15. To develop complementary educational endeavors in environmental education that have scope and sequence characteristics that integrate with each other in all subject areas.

16. To illustrate the responsibility of all teachers and administrators why they need to be a part of a comprehensive environmental education program.

17. To demonstrate how planning for and incorporation of environmental education is perhaps directly or indirectly related to a failure of the educational process.

18. To have clear illustrations (media) of how broad and comprehensive the "nine issues" of the environment are and to develop the broad concept approach to dealing with the problems as a means of avoiding a situation of solving (or working to solve) certain environmental issues at the expense or detriment of other environmental problems.

19. To develop the understanding of and appreciation for how "the issues" do relate to most subject areas in education and at all grade levels.

20. To involve University of Wisconsin - Platteville teacher preparatory personnel (who prepare the majority of C.E.S.A. #14 teachers) on the Environmental Education Advisory Committee as a means of possibl having units of study in environmental education taught to all prospective teachers.

Activities:

Spring and Summer 1975

1. The Environmental Education Specialist (approved Public Service Employee under title III C.E.T.A.) would develop/produce "local issue" media, i.e. cassette-slides, sound-video tape and 8mm film-cassettes, etc..

2. A collection of individualized learning kits, games, mini-learning centers and student oriented media to relate such material to other subject areas would be purchased for the Resource Center.

3. A student-oriented display/mini-fair would be developed for placement in school libraries.

4. A primary and intermediate elementary education classroom learning center would be developed for rotational placement in the schools.

5. Organize and meet regularly with the advisory committee.

6. Plan attendance at the "Trees for Tomorrow Session" and the "Leadership Conferences".

7. Purchase panel truck and "practice run" the route and pick-up and delivery procedure.

8. Have Dave Schiots (Project M.E.E.), Robert Warpinski (Project I.C.E.) and Dave Engleson (D.P.I., each give a presentation at the monthly C.E.S.A. #14 May, June and July Superintendents Advisory meetings.

9. The Special Projects' Environmental Specialist would review current computer-assisted instruction (C.A.I.) programs and develop additional C.A.I. Programs relating to environmental topics.

10. A catalog of all materials and equipment would be prepared for distribution to all classroom teachers in C.E.S.A. #14.

Fall 1975 and Winter 1976

1. Participate in as many pre-school and regular school in-service programs in local districts as possible.

2. Have a demonstration booth at the two fall Teacher Convention Sessions in Southwest Wisconsin.

3. Present a demonstration fair for teachers at the C.E.S.A. Environmental Resource Center.

4. Set up rotational schedule for the classroom learning centers and implement accordingly.

5. Start the on-going series of classroom demonstrations of the environmental resource center supplies and equipment.

6. Implement the "two days per week per school district" delivery system parallel to that successfully operated for the past four years (in other media areas) in C.E.S.A. #11.

7. Continue meeting with the steering committee and specifically plan two in-service sessions/programs.

8. The library-centered display for awareness/value development purposes would be put on a rotational schedule.

9. The behavioral objectives teaching units from Project I.C.E. would be reviewed with principals at conference meetings as a means of involving their leadership in the project.

Spring and Summer 1976 and After

1. Purchase, with local monies, additional materials/equipment.

2. Continue in-service programs.

3. Conduct evaluation sessions.

4. Implement long-range plans.

---Melvin O. Bollom
November 1976

PROJECT I-C-E (INSTRUCTION-CURRICULUM-ENVIRONMENT)

Robert J. Warpinski, Director, 1927 Main Street, Green Bay, Wisconsin 54301; (414)468-7464.

Project I-C-E is a K-12 curriculum and instruction program for environmental education. A framework based on 12 major environmental concept categories provides structure for each grade level and subject area, and totally, K-12, to assist all staff to teach environmentally.

The major goal is to directly or subtly lead students to awareness, appreciation and recognition of the vital issues, concerns, and factors shaping environmental attitudes and values.

The program emphasizes use of the urban and natural community as an extension of and a reinforcement for classroom activities. No special or expensive equipment or facilities are required. The project-developed curriculum guides and model field activity units can be used by random teachers or readily implemented by groups of interested teachers, by a building staff, or a K-12 system without regard for locale or circumstance.

Suggested program learning activities are designed to be integrated into regular (traditional) courses of study by substitution of content or activity, while maintaining traditional skill concerns; hence, it is not viewed as something extra for teachers to do as with additional instructional matter. This is achieved through a supplementary episode (mini-lesson) design that includes the concept, subject area and topic designation and suggests several alternative student/class activities based on cognitive and affective objectives and necessary skills. A further section provides suggested reference and instructional resources for teachers.

Project-developed teacher materials include a series of 39 I-C-E Environmental Education Guides for all grade levels and in all major subject areas except foreign languages. In addition there are over 30 supplementary field activity models. Teachers adapt or modify activities according to local needs and interests. A Media Catalog, project brochure, and a strategy handbook "To Catch a Falling Star" provide teachers with resource reference, program information, and suggested implementation strategies. Several AV programs are basic to staff training; "Head High in Learning" is an overall program approach and "Man Needs His Environment" deals with the 12 I-C-E Environmental Educational Concept Categories.

An experimental evaluation design in 1974-75 showed significant student cognitive gains on the 12 major environmental concepts for sample grades 2, 5, and 8. Grade 11 results were inconclusive with inadequate implementation at that secondary level. Dr. Conrad Katzenmeyer and support staff from the Wisconsin Research and Development Center conducted the evaluation. The results are detailed in a May 31, 1975 document "Final Evaluation Report, Project I-C-E, Green Bay, Wisconsin."

Project I-C-E was funded under ESEA Title III, administered by the Wisconsin Department of Public Instruction. Following a planning grant in 1969, the project became operational in July 1970 and served a multidistrict region in Northeastern Wisconsin until June 1975. With the ending of such state Title III funds, I-C-E continues to serve the area through a self-supporting RMC for environmental media and through sale of the curriculum guides nationally and internationally.

Since July 1975, the I-C-E program has been funded for national dissemination under the auspices of the USOE-supported National Diffusion Network following approval by the OE-NIE Joint Dissemination Review Panel in May 1975. Awareness and adoption programs span the nation: Washington, Oregon, Texas, Oklahoma, Missouri, Iowa, Nebraska, Minnesota, Illinois, Indiana, Ohio, Kentucky, New Hampshire, Vermont, and Connecticut, and non-project area districts in Wisconsin. Under the Special Projects category in the U.S. Office of Education budget, there is provision for continuation of the National Diffusion Network, hence similar I-C-E dissemination activities for 1977-1978.

---Robert J. Warpinski
October 1976

1973 DIRECTORY REFERENCE: pp. 640-642

1975 DIRECTORY REFERENCE: pp. 122-124

ERIC DOCUMENTS:

1. Kindergarten Environmental Education Guide. ED 100 652
2. Grade One Environmental Education Guide. ED 100 653
3. Grade Two Environmental Education Guide. ED 100 654
4. Grade Three Environmental Education Guide. ED 100 655
5. Grade Four Environmental Education Guide. ED 100 656
6. Grade Five Environmental Education Guide. ED 100 657
7. Grade Six Environmental Education Guide. ED 100 658
8. Agriculture Environmental Education Guide. ED 100 659
9. American History Environmental Education Guide. ED 100 660
10. Art 7-9 Environmental Education Guide. ED 100 661
11. Biology Environmental Education Guide. ED 100 662
12. Earth Science Environmental Education Guide. ED 100 663
13. General Math 9-12 Environmental Education Guide. ED 100 664
14. Language Arts 7-8 Environmental Education Guide. ED 100 665
15. Language Arts 9-12 Environmental Education Guide. ED 100 666
16. Life Science Environmental Education Guide. ED 100 667
17. Mathematics 7 Environmental Education Guide. ED 100 668
18. Mathematics 8 Environmental Education Guide. ED 100 669
19. Mathematics 9-12 Environmental Education Guide. ED 100 670
20. Music 7-9 Environmental Education Guide. ED 100 671
21. Music 10-12 Environmental Education Guide. ED 100 672
22. Social Studies 7-8 Environmental Education Guide. ED 100 673
23. World History Environmental Education Guide. ED 100 674
24. Art K-3 Environmental Education Guide. ED 100 686
25. Art 4-6 Environmental Education Guide. ED 100 687

26. Art 10-12 Environmental Education Guide. ED 100 688
27. Business Education 9-12 Environmental Education Guide. ED 100 689
28. Home Economics 7-12 Environmental Education Guide. ED 100 690
29. Industrial Arts 7-12 Environmental Education Guide. ED 100 691
30. Industrial Arts 9-12 Environmental Education Guide. ED 100 692
31. Music K-3 Environmental Education Guide. ED 100 693
32. Music K-4 Environmental Education Guide. ED 100 694
33. Physical Education K-6 Environmental Education Guide. ED 100 695
34. Physical Education 7-12 Environmental Education Guide. ED 100 696
35. Physical Science Environmental Education Guide. ED 100 697
36. Physics Environmental Education Guide. ED 100 698
37. Catalog of Media Resources, Project I-C-E. ED 113 142
38. To Catch a Falling Star. Environmental Education Implementation Strategy Handbook. ED 114 271

MELROSE-MINDORO HIGH SCHOOL TOTAL TEAM TECHNIQUES IN INDIVIDUALIZED ENVIRONMENTAL EDUCATION

Mylo Hayford, Project Director; Melrose-Mindoro High School, Melrose, Wisconsin 54642; (608)488-2201 or (608)857-3417.

Purpose:

To provide the students of the Melrose-Mindoro High School with access to staff, equipment, indoor and outdoor facilities, and research materials that they might conduct studies of the environment as individuals beyond the demands of curricular activities.

Objectives:

1. To individualize the opportunities of students for an environmental education.

2. To organize all the school's curriculum, staff, and facilities into an effective team for environmental education.

3. To provide students with an all-inclusive environmental education in order for them to form individual concepts, values, and attitudes toward beneficial environmental practices.

4. To allow students to investigate for themselves the individual forces in an environment and their own impact on the environment.

Population Served:

Approximately 320 students in grades 9-12 are eligible to participate in the project, although only those that choose to participate will be served. The school is located in a completely rural area and most students reside on small (300 acre) dairy farms or in small villages.

The area is the rugged, unglaciated area found in Western Wisconsin. a land of hills and trees.

Methodologies:

A student may apply for a project from any subject area. He would receive assistance from the instructor from the subject area from which he makes his application, but he can also request and receive assistance from any instructor. For example, if he originates his project in an English class, the English instructor would help the student organize and initiate the project, but if the student wants to make tests on water purity, he would schedule time with the appropriate science teacher.

After the student has the basic organization completed, he may be given access to any of the science equipment (some fairly sophisticated test equipment was purchased for this project) and AV equipment (cameras, tape recorders, and projectors). He would be able to schedule the equipment for in-school research, tests in the field, or project work at home. The student would have access to many recording devices to keep records of various phenomena and test results.

When the student completes the research, test, or study phase of his project, he will be encouraged to prepare his report in an audio-visual format which will then be considered for inclusion in the Media Center's catalog.

Materials Produced:

Only procedural materials have been developed for dissemination of the project (project application forms, evaluation forms, and operational forms). Students have developed many materials that are results of individual projects.

Funding Sources:

The original funding source for this project was two NDEA Title III Special Project grants. All other funds (which are incidental to the Project) have been locally budgeted.

Project/Program Evaluation:

The Project has averaged about 150 students a year who have actively participated. The number would have been higher if scheduling problems had not interfered with student participation. Student projects have been environmentally diversified, and there have been some attempts at social and literary environmental projects, although procedures for these projects have not as yet been refined. The most success has been experienced with biology students since the project formula grew out of a similar method used by the biology instructor.

Plans for the Future:

Our future plans include a complete review and evaluation of the present program to determine its strengths, weaknesses, and assessed needs. Under a Title IV Planning Grant that is being prepared, we will consider:

1) Curriculum changes necessary to host our project method; 2) Involvement of all disciplines in environmental projects (i.e., social and literary projects); 3) Providing a daily schedule that will free school facilities for use by project students; 4) Development of outdoor lab facilities which would include test plots and simulation areas; and, 5) Direct parental and community involvement in student projects as well as adult projects for continuing education.

---Mylo Hayford
October 1976

"IT'S YOUR COMMUNITY"

Pat Pollworth, Field Director; Girl Scouts of Milwaukee Area, Inc.,
2500 N. Mayfair Road, Milwaukee, Wisconsin 53226; (414)476-1050.

Overall Purposes:

1. To conduct a conference and exposition event on the environmental implications related to a number of local urban land use issues.

2. To involve directly in that event adult youth volunteers from a multiplicity of agencies and a broad base of metropolitan sub-communities.

3. To reach indirectly a large number of young people with whom the adult volunteers work and relate.

4. To influence great cooperation on environmental concerns between and among the formal and informal educational structures in the Milwaukee metropolitan community.

Specific Objectives:

1. To conduct a conference and exposition event on the environmental implications related to a number of local urban land use issues;

2. To involve directly in that event 500 adult youth-work volunteers from a multiplicity of agencies and a broad base of metropolitan sub-communities;

3. To reach indirectly a large number of young people with whom the adult volunteers work and relate;

4. To build the interest of these younger and older citizens in urban land use issues; to provide them information and increase their knowledge and understanding of these environmental issues; and to provide them avenues for active participation in local problem resolution related to these issues;

5. To locally take positive and concrete action on the 1975-1978 Girl Scout Goals and objectives, particularly:

   Objective 1: To Anticipate and Initiate Change; and

   Objective 2: To Build a Dynamic Representative Membership Actively Involved in Enrichment and Change.

6. To demonstrate to other members of nationally-affiliated organizations the value and potential of such an event; and

7. To influence greater cooperation on environmental concerns between and among the formal and informal educational structures in the Milwaukee metropolitan community.

Target Audience(s):

The two target groups for the conference itself and follow-up activities were adult volunteers and staff working in youth-work agencies and youth from throughout the metropolitan Milwaukee area.

Methodologies:

There were several unusual features in the design of the project, which was funded under a P.L. 93-278 mini-grant. Perhaps the most unusual feature was the presentation of ten different tours on ten different subjects scheduled simultaneously. This arrangement gave participants a wide range of options in terms of their interests and concerns. Participants registered for only one area of interest and then attended that tour in the morning, and a related workshop in the afternoon.

"On-site" tours were used to have conference participants actually visit and see areas in the city that are related to land use issues.

"Live demonstrations" with children gave conference participants a chance to view children involved in a multi-media, inter-art learning experience concerning their urban environment.

Materials Produced (Printed, Audio-Visual, etc.):

The following materials have been developed to give concrete helps to youth-workers in the community.

1. A bibliography of children's books relating to their city environment. (Developed by Inter-Arts Director at Urban Day School.)

2. A listing of suggested city activities for children to heighten their awareness. (Developed by a Milwaukee County Landmarks Commissioner.)

3. A booklet on how to plan a city trip. (Developed by a Girl Scout adult volunteer.)

4. A slide presentation and accompanying script on "Milwaukee Landmarks for Kids." (Developed in cooperation with a Milwaukee County Landmarks Commissioner.)

5. A page on community resources giving available helps to Girl Scout adult volunteers published in the fall 1976 issue of the "Leader Resource Book." (Compiled by Conference Coordinator.)

6. A city "Kid Quiz" designed to increase basic factual knowledge about Milwaukee for children in the community. (Developed with assistance from staff in Education Department of Milwaukee Public Museum.)

7. A logo used to identify all printed information connected with the conference and used to promote the conference. (Designed by a commercial artist.)

Project/Program Evaluation:

Evaluation forms provided information in terms of usefulness of the day's programming.

140 evaluations were returned. The breakdown on responses were:

Outstanding	35
Very Useful	45
Useful	31
Somewhat Useful	12
Not Useful	3

The problem in collecting data was that we handed out evaluations at the end of the day. Some participants left before the 4:00 closing. Many participants did not return their evaluation forms.

Plans for the Future:

Six small mural projects and one major mural project will be sponsored during 1976-1977 by the Girl Scouts of Milwaukee Area. Funds and support of these projects will be available to troops throughout the metropolitan area. This is another prime example of spin-off activities that will be a direct result of the public art workshop which was part of the "It's YOUR Community" conference.

Senior Girl Scouts, grades 9 through 12, will have their spring 1977 conference on the urban environment and will call it "Urban Upswing." Many of "It's YOUR Community" conference ideas and program designs will be used. This conference can be cited as another example of spin-off results reaching more and more young people as time goes on.

---Pat Pollworth
October 1976

MACKENZIE ENVIRONMENTAL EDUCATION CENTER

Joel L. Stone, Resident Coordinator; MacKenzie Environmental Education Center, Wisconsin Department of Natural Resources, Poynette, Wisconsin 53955; (608)635-4498 (Administration Office); (608)635-7311 (Resident Center).

Staff: Gen Bancroft, Manager; Joel Stone, Resident Coordinator; Richard Kalvelege, Naturalist-Educator; Robert Wallen, Naturalist-Educator; Darlene Lukins, Secretary; George McQueen, Chuck Wussow, Jim Thompson, Maintenance; Several interns on a semester basis from the University of Wisconsin System.

Location: The MacKenzie Environmental Center is located in Central Wisconsin near the Wisconsin River. It lies in an area that has a rich geologic past which has provided a full range of land forms and corresponding biological communities. This area also played an important role in the development of Wisconsin and offers many historic landmarks as well as the state's newest power generating station. What better place to study about the environment and man's effect on it?

Facilities: 247 acres of upland field and forests; Exhibit of native Wisconsin animals and birds; Arboretum containing 328 varieties of native and non-native trees and plants; Five self-guiding nature trails; Four conservation-oriented museums; Picnic area; Auditorium and various meeting rooms; Resident Center with a support building, kitchen, dining area, workshop and classroom with a capacity of 150, plus dorms with a capacity of 80; 22 Satellite areas withing a 45-minute drive.

Purpose: To provide new opportunities for students and adults to develop an appreciation for Wisconsin's environmental heritage and problems being encountered in its protection, use, and conservation; and to gain skills to solve environmental problems.

Objectives:

1. To operate a year-round Resident Program for grades 5-12, college and adults - reaching 4000 Wisconsin citizens per year.
2. To operate a day program for grades K-12, college and adults - reaching 15,000 individuals per year.
3. To provide a place for college students in various schools of natural resources to serve an internship, reaching 16 students per year.
4. To provide an environmental education facility for approximately 80,000 non-scheduled visitors per year.

Program: Scheduled tours and day programs; Scheduled resident programs designed to compliment each group's on-going program; Workshops for teachers, other educators, and group leaders; Career-oriented conservation camps.

Planning: Every group desiring a resident program is required to participate in at least one program planning session. Such sessions are designed to develop programs that fit each group's wants and needs.

Evaluation: All groups participating in Resident programs are also required to evaluate each session. Such evaluation allows us to continuously monitor the quality of our programs.

---Joel L. Stone
October 1976

CENTRAL WISCONSIN ENVIRONMENTAL STATION

Richard Wilke, Director; College of Natural Resources, The University of Wisconsin-Stevens Point, Stevens Point, Wisconsin 54481; (715)869-3428.

Background and Purpose:

The Central Wisconsin Environmental Station, since its origin in the spring of 1975, has sought to provide a foundation for the study of ecological principles and concepts as they relate to people and their environment.

The Station's overall goal is to develop in the groups it serves an awareness of and concern about the environment and its associated problems. The Station further seeks to develop in its audiences the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions to current problems, and the prevention of new ones.

The Station is a non-profit organization operating under the sponsorship of the University of Wisconsin-Stevens Point Foundation, Inc., and the Colleges of Natural Resources and Professional Studies at the University of Wisconsin-Stevens Point.

The Station has over 500 acres of diverse Wisconsin landscape available for study. Numerous ecological communities are within easy walking distance of the Station. Groups can explore coniferous and deciduous forests, bogs, grasslands, farms, ponds, and four lakes. Facilities include housing units for groups up to 72; dining facilities; food service; interpretive nature trails; hiking and cross-country ski trails; classrooms; an environmental education resource materials center; complete waterfront; and ample room for meetings and conferences.

Target Audiences:

The Environmental Station is a model regional environmental education center serving the following groups:

1. K-12 students and teachers from public and pirvate school systems.

2. Undergraduate and graduate students from the University of Wisconsin-Stevens Point who are majoring or minoring in Environmental Studies, Natural Resource Management, Outdoor Education, Wildlife, Forestry, Water, Soils, and Education.

3. Practicing teachers, through in-service training sessions and graduate workshops in environmental education and/or outdoor education.

4. Civic, service, educational, religious, social, and family groups through workshops and special programs.

The Station's Objectives:

1. Provide resident and non-resident environmental education programs at the Stations with pre and post activities for use in the participating schools.

2. Provide K-12 environmental education activities and lessons emphasizing the processes of problem solving and valuing for integration into all grade levels and subject areas.

3. Provide assistance to school systems in the integration of environmental education into their specific curriculums through in-service sessions, workshops, and graduate courses for teachers and other school personnel.

4. Provide outdoor educational experiences for elementary and secondary education students from UW-SP.

5. Provide opportunities for practical experience and training of undergraduates and graduates desiring to become nature center directors; interpretive naturalists; camp directors; outdoor education specialists; local, county, state, or national resource specialists and others.

6. Provide an environmental education curriculum library for use by students from UW-SP and area teachers.

7. Provide workshops and programs for the citizens of central Wisconsin emphasizing the processes of appreciation and concern for the environment coupled with a knowledge of the concepts and principles that govern it resulting in a citizenry capable of intelligent environmental decision making and committed to active involvement.

8. To continually develop, evaluate, and revise K-12 environmental education curriculum materials for use at the Station.

9. To develop K-12 environmental education curriculum materials for use in school classrooms, school yards, and communities.

Through the Environmental Station, UW-SP faculty, graduate students, and undergraduates are able to interact and aid participating school systems as well as interested citizens. This cooperative effort results in mutual benefits; the development and implementation of environmental education curriculum materials and programs in local school districts is accomplished, and in the process, students at UW-SP derive practical experiences while developing materials, teaching at the Station and working with these school and community groups.

Materials Produced:

Leaders Manual, 1976; Administrative Manual, 1976; Teachers Guide, 1976; Curriculum Guide, 1976; Slide-tape student orientation program, 1976; Slide-tape adult orientation program, 1976; Slide-tape winter environmental education programs, 1976; Interpretive slide-tape programs including "The White-tailed Deer" and "Bats", 1975; Orientation for University Students - video tape, 1975; General Brochure, 1976.

Funding Sources:

The Environmental Station is funded through the cooperative efforts of the University of Wisconsin-Stevens Point, the University of Wisconsin-Stevens Point Foundation, Inc., participating school districts, community support, and occasional federal projects.

Project Program Evaluations:

Formative evaluation is ever-present at the Station. Teacher's program evaulations, student's program evaluations, program director's evaluations, and unit leader evaluations are a few of the evaluations which are constantly used.

K-12 teachers and students participating in programs at the Station evaluate all phases of their program. Program directors in consultation with their staff of University students evaluate programs daily. Faculty from UW-SP evaluate the university students teaching and working at the Station. Results from these evaulations are continually compiled and utilized in program revision. Due to the recent development and utilization of the evaluations described above, there has been no published report as of yet.

Plans for the Future:

The future plans of the Station are centered in two general areas: physical facilities and program.

Efforts are currently underway to raise funds for the construction of two winterized dormitories and a winterized dining hall. Presently the Station can only accomodate groups desiring to stay overnight from April 15 to October 15 since the dining hall and cabins are not winterized. Numerous school groups interested in resident environmental education programs must be turned away for this reason. A second interpretive nature trail is also being planned as well as cross country ski trails for winter programs. The Assistant to the Director is currently engaged in constructing a comprehensive physical master plan to guide the growth, development and utilization of the Environmental Station.

There are numerous program developments planned for the future. Graduate students in environmental education are engaged in numerous projects including: a) developing, expanding, and revising K-12 curriculum materials; b) planning community environmental education workshops and programs; c) evaluating curriculum materials; d) developing a guide to the community resources available in this area for school field trips, with specific references to environmental management education concepts which can be emphasized at each site. New University courses in techniques and methodology as well as a practicum course are being added this year by the College of Natural Resources and School of Education at UW-SP.

---Richard Wilke
October 1976

1975 DIRECTORY REFERENCE: pp. 376-377

ERIC DOCUMENT:

The Beginnings of a Nature Center. ED 104 645

ECOLOGY AND HUMAN VALUES

Les Thomas (Biology), Lynn Driver (Sociology); Sun Prairie Senior High School, Sun Prairie, Wisconsin 53590.

Grade Level: 11 and 12, elective (Science or Social Studies credit).

Grading System: Students choose between a pass/fail grade or a letter grade.

Length of Course: 1 semester.

Course materials: No textbook, use handouts, various AV materials, lecture notes.

Units of Study:
I. Introduction to the Crisis and Concepts of Ecology
II. Science and Technology
III. Energy
IV. Food and Population

Units and Unit Objectives:

I. Introduction to the Crisis and Concepts of Ecology: By the end of the unit the student should be able to do the following:

   a. Write an abstract on the article "The Realities of Pollution" by Hugh Iltis.
   b. List Barry Commoner's Laws of Ecology and give an example of each.

c. Explain the concept of biological magnification with use of an example.
d. Give a brief explanation of the various cycles (water, oxygen, nitrogen, etc.).
e. Explain the energy relationships in ecosystems.
f. Explain the difference between clinical and subclinical effects with an example of how this relates to environmental decision-making.
g. Explain the following quote: "Man cannot adapt to culture; culture must adapt to man."
h. Explain the differences between the American Indian view of the land, Eastern cultures' view of the land, and our Western view of the land.
i. List and explain attitudinal causes of our environmental crisis (time and space concepts, growth is good ethic, view of man's relationship to nature, etc.).

II. Science and Technology: By the end of the unit the student should be able to do the following:

a. Explain the difference between science and technology.
b. Write an essay examining the relationship between our environmental problems and science and technology.
c. Explain the social and psychological problems related to technology.
d. Explain the purpose, results, and criticisms of the "Limits to Growth" study.
e. Define a list of terms used in biomedical research.
f. Write an essay examining the impact of television on modern society.
g. Explain the concept of intermediate technology, list its benefits, and give an example of it.
h. Write an essay on the concept of progress and how it is related to our environmental problems.

III. Energy: By the end of the unit the student should be able to do the following:

a. Define various terms having to do with power, energy, units of measurement, etc.
b. Explain the history of our energy use - degree of consumption, sources of energy.
c. Tell where our energy presently comes from and where it goes.
d. List the advantages and disadvantages of deep mining versus surface mining of coal.
e. Appreciate the scarcity of natural gas and petroleum as major sources of energy in the near future.
f. List the advantages and disadvantages of nuclear power.
g. List and explain the advantages and disadvantages of alternative sources of energy - solar, wind, methane, oil shale, tar sand.
h. List methods of conservation of energy available to individuals and to society.
i. Write a research paper dealing with any aspect of the energy unit.

IV. Food and Population: By the end of the unit the student should be able to do the following:

a. Analyze his personal diet and see how he can improve it.
b. Compare food consumption in the US (calories and protein) with food consumption in the rest of the world.
c. State the pros and cons of food additives.
d. List the advantages and disadvantages of use of pesticides.
e. Comprehend the complex relationship between energy and food.
f. Comprehend the complex relationship between food and population.
g. Assess the success and potential of the Green Revolution in solving the world food shortage.
h. Analyze various proposals to solve the over-population problem.

---Lynn Driver
October 1976

1973 DIRECTORY REFERENCE: pp. 659-660

1975 DIRECTORY REFERENCE: p. 129

SCHOOL FOREST CAMP

Hugh Curtis, Coordinator; Outdoor Education and School Forest, Wausau District Public Schools, 407 Grant Street, Wausau, Wisconsin 54401; (715)845-5279.

The School District of Wausau maintains a resident Environmental Education Center, frequently called School Forest Camp, for students of this school district. All fifth grade students spend two and one-half days at the Center during the winter months. All sixth grade students spend a full week there, either in the fall or the spring. The use by other groups is voluntary and does not include all classes in the school district.

Our purpose is to utilize this facility to enable teachers to teach their normal assigned areas of instruction, but do it in a more effective manner. The experience at the School Forest Camp is directly related to their regular classroom activities. Obviously, there are many social and environmental gains for the individual students, in addition to their classroom instructional areas.

Our funding has been entirely local. Federal grants have not been received for this project. The land (500 acres) and the materials for the twenty buildings were obtained through student activities, donations, and the sale of pulpwood. No tax monies were used to obtain these facilities.

Our curriculum materials were developed for our local use and may not be of great assistance to others. They include: Camp Director's Manual; Classroom Environmental Activities for K-3; Self-Guided Nature Trail Booklets; and a Manual for High School Counselors. A brief brochure has also been produced.

---Hugh Curtis
October 1976

APPENDIX:

ERIC MICROFICHE COLLECTIONS*

*as published in Resources in Education, December 1976.

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ERIC MICROFICHE COLLECTIONS

Alabama

Auburn University
Ralph Brown Draughon Library
Auburn, Alabama 36830
Telephone: (205) 826-4500

Samford University
Library
800 Lakeshore Drive
Birmingham, Alabama 35209
Telephone: (205) 870-2847

University of Alabama in Birmingham
Mervyn H. Sterne Library
University Station U.A.B.
Birmingham, Alabama 35294
Telephone: (205) 934-2019

U.S. Army Aviation Training Library
Buildings 5906 and 5907
23rd and 5th Avenues
Fort Rucker, Alabama 36362
Telephone: (205) 255-5014

Jacksonville State University
University Library
Jacksonville, Alabama 36265
Telephone: (205) 435-9820

Livingston University
Livingston, Alabama 35470
Telephone: (205) 652-9661, Ext. 238

University of South Alabama
Library
307 University Boulevard,
Mobile, Alabama 36688
Telephone: (205) 460-7021

University of Montevallo
Carmichael Library
Montevallo, Alabama 35115
Telephone: (205) 665-2521, Ext. 266

Alabama State University
915 South Jackson Street
Montgomery, Alabama 36101
Telephone: (205) 262-3581

Auburn University at Montgomery
Library
Montgomery, Alabama 36109
Telephone: (205) 279-9110, Ext. 251

Alabama Agricultural and Mechanical University
J.F. Drake Memorial Learning Resources Center
Normal, Alabama 35762
Telephone: (205) 859-7309

Troy State University
Library
Troy, Alabama 36081
Telephone: (205) 566-3000, Ext. 430

University of Alabama
Main Library
University, Alabama 35486
Telephone: (205) 348-6047

Alaska

Anchorage Higher Education Consortium
Library
3211 Providence Drive
Anchorage, Alaska 99504
Telephone: (907) 272-5522

University of Alaska-Southeast
Library
Auke Bay, Alaska 99821
Telephone: (907) 789-7291

University of Alaska
Library
Fairbanks, Alaska 99701
Telephone: (907) 479-7279

Alaska State Library
Division of State Libraries and Museums
Juneau, Alaska 99801
Telephone: (907) 465-2921

Arizona

Northern Arizona University
Library
Flagstaff, Arizona 86011
Telephone: (602) 523-2171

Arizona Department of Education
Research Coordinating Unit
1535 West Jefferson
Phoenix, Arizona 85007
Telephone: (602) 271-5392

Arizona State University
Hayden Library
Tempe, Arizona 85281
Telephone: (602) 965-3415; 695-3281

Pima County Community College
Learning Resources Center
2202 West Anklam Road
Tucson, Arizona 85705
Telephone: (602) 884-6821

ERIC MICROFICHE COLLECTIONS

University of Arizona
Library
Tucson, Arizona 85721
Telephone: (602) 884-3377

Arkansas

Ouachita Baptist University
Riley Library
Arkadelphia, Arkansas 71923
Telephone: (501) 246-4531, Ext. 222

University of Central Arkansas
Torreyson Library
Conway, Arkansas 72032
Telephone: (501) 329-2931, Ext. 450

University of Arkansas
Library
Fayetteville, Arkansas 72701
Telephone: (501) 575-4101

Arkansas State University
Jonesboro, Arkansas 72467
Telephone: (501) 932-3251

University of Arkansas at Little Rock
Main Library
33rd and University Avenue
Little Rock, Arkansas 72204
Telephone: (501) 568-2200

Southern State College
Magnolia, Arkansas 71753
Telephone: (501) 234-5120

University of Arkansas at Pine Bluff
Library
Pine Bluff, Arkansas 71601
Telephone: (501) 535-6700, Ext. 446

Arkansas Polytechnic College
Tomlinson Library
Russellville, Arkansas 72801
Telephone: (501) 968-0288

California

Humboldt State University
Library
Arcata, California 95521
Telephone: (707) 826-3416

Azusa Pacific College
Marshburn Memorial Library
Highway 66 at Citrus
Azusa, California 91702
Telephone: (213) 969-3434

California State College at Bakersfield
Library
9001 Stockdale Highway
Bakersfield, California 93309
Telephone: (805) 833-2151

University of California at Berkeley
Education-Psychology Library
2600 Tolman Hall
Berkeley, California 94720
Telephone: (415) 642-4208; 642-2475

California State University at Chico
Library
Chico, California 95929
Telephone: (916) 895-6526

Claremont Colleges
Honnold Library
Claremont, California 91711
Telephone: (714) 626-8511, Ext. 3969

Contra Costa County Department of Education
ACCESS Information Center
2371 Stanwell Drive
Concord, California 94520
Telephone: (415) 689-4353

California State College, Dominguez Hills
Library
800 East Victoria Street
Dominguez Hills, California 90747
Telephone: (213) 532-4300, Ext. 351

Los Angeles County Department of Education
Professional Reference Center
9300 East Imperial Highway
Downey, California 90242
Telephone: (213) 922-6397

California State University at Fresno
Library
Fresno, California 93740
Telephone: (209) 487-2175

California State University at Fullerton
800 North State College Boulevard
Fullerton, California 92634
Telephone: (714) 870-2633

Fullerton College
William T. Boyce Library
321 East Chapman Avenue
Fullerton, California 92634
Telephone: (714) 879-2560

California State University at Hayward
Education Library
Hayward, California 94542
Telephone: (415) 881-3790

University of California of San Diego
Central University Library C-075
La Jolla, California 92093
Telephone: (714) 452-3338

California State University at Long Beach
1250 Bellflower Boulevard
Long Beach, California 90840
Telephone: (213) 498-4011

Southwest Regional Laboratory for Educational Research and Development
4665 Lampson Avenue
Los Alamitos, California 90720
Telephone: (213) 598-7661

California State University at Los Angeles
5151 State University Drive
Los Angeles, California 90032
Telephone: (714) 224-2251

Pepperdine University
1121 West 79th Street
Los Angeles, California 90044
Telephone: (213) 971-7739

University of California at Los Angeles
Education and Psychology Library
Los Angeles, California 90024
Telephone: (213) 825-4081; 825-3652

University of Southern California
Education Library
University Park
Los Angeles, California 90007
Telephone: (213) 746-6249

California State University at Northridge
Oviatt Library, Microform Room
18111 Nordhoff Street
Northridge, California 91324
Telephone: (213) 885-3282

Ambassador College
Library
300 West Green Street
Pasadena, California 91123
Telephone: (213) 577-5007

California State Polytechnic University at Pomona
Kellogg-Voorhis Library
3801 West Temple Avenue
Pomona, California 91768
Telephone: (714) 598-4688

San Mateo County Educational Resources Center (SMERC)
333 Main Street
Redwood City, California 94063
Telephone: (415) 364-5600

University of California at Riverside
Library
Riverside, California 92507
Telephone: (714) 787 3226

California State College of Sonoma
1801 East Cotati Avenue
Rohnert Park, California 94928
Telephone: (707) 664-2161

California State Department of Education
Vocational Education Resources Information Center (VERIC)
1025 P Street, Room 220
Sacramento, California 95814
Telephone: (916) 445-9430

California State University at Sacramento
Library
6000 J Street
Sacramento, California 95819
Telephone: (916) 454-6775

California State College, San Bernardino
Library
5500 State College Parkway
San Bernadino, California 92407
Telephone: (714) 887-7329

San Diego County Department of Education
6401 Linda Vista Road
San Diego, California
Telephone: (714) 278-6400, Ext. 248

San Diego State University
Library
San Diego, California 92182
Telephone: (714) 286-6757

United States International University
Elliott Campus Library
10455 Pomerado Road
San Diego, California 92131
Telephone: (714) 271-4300

Far West Laboratory for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103
Telephone: (415) 565-3211

San Francisco Public Library
Civic Center
San Francisco, California 94102
Telephone: (415) 558-4927

San Francisco State University
Periodicals and Microforms Library
1630 Holloway Avenue
San Francisco, California 94132
Telephone: (415) 469-1128

San Jose State University
Library
Education Reference Room
San Jose, California 95192
Telephone: (408) 277-3391

California Polytechnic State University at San Luis Obispo
San Luis Obispo, California 93407
Telephone: (805) 546-2340

University of California at Santa Barbara
Library
Santa Barbara, California 93106
Telephone: (805) 961-2477

ERIC Clearinghouse on Information Resources
Stanford University
School of Education
Center for Research and Development in Teaching
Stanford, California 94305
Telephone: (415) 497-3345

University of the Pacific
Library
Stockton, California 95211
Telephone: (209) 946-2431

California State College of Stanislaus
Library
800 Monte Vista Avenue
Turlock, California 95380
Telephone: (209) 633-2232

Whittier College
Wardman Library
Whittier, California 90608
Telephone: (213) 693-0771, Ext. 223

Colorado

ERIC Clearinghouse for Social Studies/Social Science Education
855 Broadway
Boulder, Colorado 80303
Telephone: (303) 492-8434

University of Colorado at Boulder
Norlin Library
Boulder, Colorado 80302
Telephone: (303) 492-7235

Education Commission of the States
Resource Center
1860 Lincoln Street, Suite 300
Denver, Colorado 80203
Telephone: (303) 893-5200, Ext. 260

University of Denver
Penrose Library
2150 East Evans Avenue
Denver, Colorado 80210
Telephone: (303) 753-2314

Colorado State University
Library
Fort Collins, Colorado 80523
Telephone: (303) 491-5911

University of Northern Colorado
Mitchener Library
Greeley, Colorado 80639
Telephone: (303) 351-2264

Western State College of Colorado
Leslie J. Savage Library
Gunnison, Colorado 81230
Telephone: (303) 943-2860

Northern Colorado Educational Board of Cooperative Services
Information Retrieval Center
830 South Lincoln Street
Longmont, Colorado 80501
Telephone: (303) 772-4420

Connecticut

University of Bridgeport
Library
126 Park Avenue
Bridgeport, Connecticut 06602
Telephone: (203) 576-4752

Area Cooperative Educational Services
Educational Resources Center
800 Dixwell Avenue
New Haven, Connecticut 06511
Telephone: (203) 562-9967

Southern Connecticut State College
Hilton C. Buley Library
501 Crescent Street
New Haven, Connecticut 06515
Telephone: (203) 397-2101, Ext. 500

ERIC MICROFICHE COLLECTIONS

University of Connecticut
Library
Storrs, Connecticut 06268
Telephone: (203) 486-2522

Capitol Region Education Council
443 Windsor Avenue
Windsor, Connecticut 06095
Telephone: (203) 522-6137

District of Columbia

American University
Library
Massachusetts and Nebraska Avenue, N.W.
Washington, D.C. 20016
Telephone: (202) 686-2325

Catholic University of America
Mullen Library, Room 211
Fourth and Michigan Avenue, N.E.
Washington, D.C. 20064
Telephone: (202) 635-5073

Department of Health, Education, and Welfare
Department Library
330 Independence Avenue, S.W.
Washington, D.C. 20201
Room 1436, North Building
Telephone: (202) 245-6791

D.C. Public Schools
Research Information Center
415 Twelfth Street, N.W., Room 1013
Washington, D.C. 20004
Telephone: (202) 724-4249

D.C. Teachers College
Library
1100 Harvard Street, N.W.
Wilson Building
Washington, D.C. 20009
Telephone: (202) 673-7018

ERIC Clearinghouse on Higher Education
George Washington University
One Dupont Circle, Suite 630
Washington, D.C. 20036
Telephone: (202) 296-2597

ERIC Clearinghouse on Teacher Education
American Association of Colleges for Teacher Education
One Dupont Circle, N.W., Suite 616
Washington, D.C. 20036
Telephone: (202) 293-7280

Federal City College
Graduate Research Library
Library and Media Services Division
Room 210
724 Ninth Street, N.W.
Washington, D.C. 20001
Telephone: (202) 727-2903

Gallaudet College
Edward Miner Gallaudet Memorial Library
Seventh and Florida Avenue, N.E.
Washington, D.C. 20002
Telephone: (202) 447-0884

Library of Congress, Microform Reading Room
First Street & Independence Avenue, S.E.
Room 140-B
Washington, D.C. 20540
Telephone: (202) 426-5471

Library of Congress, Science Reading Room
110 Second Street, S.E.
Washington, D.C. 20540
Telephone: (202) 426-5639

National Education Association
Staff Library
1201 Sixteenth Street, N.W.
Washington, D.C. 20036
Telephone: (202) 833-5472

National Institute of Education
Educational Research Library
6th Floor
1832 M Street, N.W.
Washington, D.C. 20208
Telephone: (202) 254-5060

National Institute of Education
Educational Research Library
Room A-039 400 Maryland Avenue, S.W.
Washington, D.C. 20202
Telephone: (202) 245-8853

U.S. Office of Education/DHEW
Bureau of Occupational and Adult Education
Regional Office Building
Seventh and D Streets, S.W., Room 5026
Washington, D.C. 20202
Telephone: (202) 245-2614

Washington Technical Institute
Instructional Resources Center
4200 Connecticut Avenue, N.W.
Washington, D.C. 20008
Telephone: (202) 282-7501

Delaware

Delaware State College
Jason Library
Dover, Delaware 19901
Telephone: (302) 678-5120

Florida

Florida Atlantic University
Library
Boca Raton, Florida 33432
Telephone: (305) 395-5100, Ext. 2450

ERIC MICROFICHE COLLECTIONS

University of Miami
Library
Coral Gables, Florida 33124
Telephone: (305) 284-3155

Broward County School Board
Materials Center
1320 S.W. Fourth Street
Fort Lauderdale, Florida 33312
Telephone: (305) 765-6158

Nova University
Behavioral Sciences Library
3301 College Avenue
Fort Lauderdale, Florida 33314
Telephone: (305) 587-6660, Ext. 264

Indian River Community College
3209 South Virginia
Fort Pierce, Florida 33450
Telephone: (305) 464-2000, Ext. 226

University of Florida
Education Library
341 Norman Hall
Gainesville, Florida 32611
Telephone: (904) 392-0707

Duval County School Board
Professional Library
1741 Francis Street
Jacksonville, Florida 32209
Telephone: (904) 633-6068

Edward Waters College
H.Y. Tookes Library
1658 Kings Road
Jacksonville, Florida 32209
Telephone: (904) 353-5053

University of North Florida
Library
Jacksonville, Florida 32216
Telephone: (904) 646-2616

Florida International University
Library
Tamiami Trail
Miami, Florida 33199
Telephone: (305) 552-2479

Miami-Dade Community College
11380 N.W. 27th Avenue
Miami, Florida 33167
Telephone: (305) 685-4571

Miami-Dade Community College
South Campus Library
11011 S.W. 104th Street
Miami, Florida 33176
Telephone: (305) 596-1221

Miami-Dade Community College
Downtown Campus
Library
300 N.E. Second Avenue
Miami, Florida 33132
Telephone: (305) 577-6889

Marion County Schools
Teachers' Professional Library
406 S.E. Alvarez
Ocala, Florida 32670
Telephone: (904) 732-8041, Ext. 290

Florida Technological University
Orlando, Florida 32816
Telephone: (305) 275-2561

University of West Florida
Library-Reference Department
Pensacola, Florida 32504
Telephone: (904) 476-9500

University of Sarasota
2080 Rinling Boulevard-Suite 203
Sarasota, Florida 33577
Telephone: (813) 955-4228

Florida Educators Information Service
Career Education Center
415 North Monroe Street
Tallahassee, Florida 32304
Telephone: (904) 644-6454

University of South Florida
Library
Tampa, Florida 33620
Telephone: (813) 974-2881

Georgia

Albany State College
Margaret Rood Hazard Library
504 College Drive
Albany, Georgia 31705
Telephone: (912) 439-4065

Georgia Southwestern College
James Earl Carter Library
Americus, Georgia 31709
Telephone: (912) 928-1352

University of Georgia
Library
Athens, Georgia 30602
Telephone: (404) 542-7460

Georgia Department of Education
Education Information Center
212 State Office Building
Atlanta, Georgia 30334
Telephone: (404) 656-2402

Georgia State University
104 Decatur Street, S.E.
Atlanta, Georgia 30303
Telephone: (404) 658-2172

Mercer University in Atlanta
3000 Flowers Road South
Atlanta, Georgia 30341
Telephone: (404) 451-0331

Oglethorpe University
Library
4484 Peachtree Road, N.E.
Atlanta, Georgia 30319
Telephone: (404) 261-1441, Ext. 24

Augusta College
Library
2500 Walton Way
Augusta, Georgia
Telephone: (404) 828-3561

West Georgia College
Library
Carrollton, Georgia 30117
Telephone: (404) 834-1373

Columbus College
Simon Schwob Memorial Library
Columbus, Georgia 31907
Telephone: (404) 568-2042

North Georgia College
Stewart Memorial Library
Dahlonega, Georgia 30533
Telephone: (404) 864-3391, Ext. 228

Fort Gordon
Woodworth Library
Building 33500
Fort Gordon, Georgia 30905
Telephone: (404) 791-3086

Georgia College
Ina Dillard Russell Library
Hancock Street
Milledgeville, Georgia 31061
Telephone: (912) 453-4047

Berry College
Memorial Library
Mount Berry, Georgia 30149
Telephone: (404) 232-5374, Ext. 221

Savannah State College
State College Branch
Savannah, Georgia 31404
Telephone: (912) 356-2183

Georgia Southern College
Library
Statesboro, Georgia 30458
Telephone: (912) 681-5117

Valdosta State College
Library
Valdosta, Georgia 31601
Telephone: (912) 247-3228

Hawaii

University of Hawaii
Thomas Hale Hamilton Library
2550 The Mall
Honolulu, Hawaii 96822
Telephone: (808) 948-7214; 948-8568

Brigham Young University-Hawaii
Ralph E. Woolley Learning Resource Center
55-220 Kulanui Street
Laie, Oahu, Hawaii 96762
Telephone: (808) 293-9211, Ext. 216

Idaho

Idaho State Department of Education
200 State Office Building
650 West State Street
Boise, Idaho 83702
Telephone: (204) 384-2189

Idaho State University
Library
Pocatello, Idaho 83209
Telephone: (208) 236-3471

Illinois

Southern Illinois University at Carbondale
Morris Library
Carbondale, Illinois 62901
Telephone: (618) 453-2718

Eastern Illinois University
Booth Library
Charleston, Illinois 61920
Telephone: (217) 581-3720

Chicago Public Library
Social Sciences and History Division
12th Floor, 425 North Michigan Avenue
Chicago, Illinois 60611
Telephone: (312) 269-2830

Chicago State University
95th and King Drive
Chicago, Illinois 60628
Telephone: (312) 995-2235

ERIC MICROFICHE COLLECTIONS

Loyola University of Chicago
Julia D. Lewis Library
820 North Michigan Avenue
Chicago, Illinois 60611
Telephone: (312) 670-2875

Northeastern Illinois University
Center for Inner City Studies
4545 South Drexel
Chicago, Illinois 60625
Telephone: (312) 268-7500

University of Chicago
Joseph Regenstein Library
1100 East 57th Street
Chicago, Illinois 60637
Telephone: (312) 753-3766

University of Illinois at Chicago Circle
Library
801 South Morgan Street
Chicago, Illinois 60680
Telephone: (312) 996-2738

Northern Illinois University
Library
DeKalb, Illinois 60115
Telephone: (815) 753-1770

Southern Illinois University
Lovejoy Library
Edwardsville, Illinois 62025
Telephone: (618) 692-2906

National College of Education
Library
2840 Sheridan Road
Evanston, Illinois 60201
Telephone: (312) 256-5150

Northwestern University
Library
Newspaper-Microtext Department
Evanston, Illinois 60201
Telephone: (312) 492-7604

Western Illinois University
Library
Government Publications Department
Macomb, Illinois 61455
Telephone: (309) 298-1050

Illinois State University
Milner Library
Normal, Illinois 61761
Telephone: (309) 438-3675

Moraine Valley Community College
10900 South 88th Avenue
Palos Hills, Illinois 60465
Telephone: (312) 974-4300

Governors State University
Park Forest South, Illinois 60466
Telephone: (312) 534-5000, Ext. 2323

Bradley University
Cullom-Davis Library
1511 West Bradley Avenue
Peoria, Illinois 61625
Telephone: (309) 676-7611, Ext. 203

Concordia Teachers College
7400 Augusta Street
River Forest, Illinois 60305
Telephone: (312) 771-8300, Ext. 448

Illinois State Office of Education
Media and Resources Center
100 North First Street
Springfield, Illinois 62777
Telephone: (217) 782-4433

Sangamon State University
Library
Springfield, Illinois 62708
Telephone: (217) 786-6633

ERIC Clearinghouse on Early Childhood Education
805 West Pennsylvania Avenue
Urbana, Illinois 61801
Telephone: (217) 333-1386

ERIC Clearinghouse on Reading and Communication Skills
National Council of Teachers of English
1111 Kenyon Road
Urbana, Illinois 61801
Telephone: (217) 328-3870

University of Illinois at Urbana
100 Main Library
Urbana, Illinois 61801
Telephone: (217) 333-2305

Indiana

Indiana University
Education Building, Room 30
Bloomington, Indiana 47401
Telephone: (812) 337-5718

University of Evansville
Clifford Library
1800 Lincoln Avenue
Evansville, Indiana 47702
Telephone: (812) 479-2462

Saint Francis College
Library
2701 Spring Street
Fort Wayne, Indiana 46808
Telephone: (219) 432-3551

ERIC MICROFICHE COLLECTIONS

Purdue University
Calumet Campus
Library
Hammond, Indiana 46323
Telephone: (219) 844-0520, Ext. 225

Indiana State Library
140 North Senate Avenue
Indianapolis, Indiana 46204
Telephone: (317) 633-6810

Purdue University
Library-Serials Department
Lafayette, Indiana 47907
Telephone: (317) 749-2557

Ball State University
Bracken Library
Muncie, Indiana 47306
Telephone: (317) 285-4484

University of Notre Dame
Notre Dame, Indiana 46556
Telephone: (219) 283-7579; 283-6450

Indiana State University
Cunningham Memorial Library
Terre Haute, Indiana 47809
Telephone: (812) 232-6311

Iowa

Iowa State University
Library
Ames, Iowa 50010
Telephone: (515) 294-3642; 294-8436

University of Northern Iowa
Library
Cedar Falls, Iowa 50613
Telephone: (319) 273-2838

Drake University
Cowles Library
Twenty-Eighth Street and University Avenue
Des Moines, Iowa 50311
Telephone: (515) 271-2814

Iowa Department of Public Instruction
Grimes State Office Building
Des Moines, Iowa 50319
Telephone: (515) 281-3475

American College Testing Program
Library
2201 North Dodge
Iowa City, Iowa 52240
Telephone: (319) 356-3877

University of Iowa
Education-Psychology Library
W202 East Hall
Iowa City, Iowa 52242
Telephone: (319) 353-5345

Kansas

Emporia Kansas State College
William Allen White Library
1200 Commercial Street
Emporia, Kansas 66801
Telephone: (316) 343-1200, Ext. 205

Fort Hays Kansas State College
Hays, Kansas 67601
Telephone: (913) 628-4431

University of Kansas
Watson Library, Room B-27
Jayhawk Boulevard
Lawrence, Kansas 66045
Telephone: (913) 864-4661

Kansas State University
Farrell Library
Manhattan, Kansas 66506
Telephone: (913) 532-6516

Johnson County Community College
Library
College Boulevard at Quivira Road
Overland Park, Kansas 66210
Telephone: (913) 888-8500, Ext. 255

Kansas State College of Pittsburg
Pittsburg, Kansas 66762
Telephone: (316) 231-7000, Ext. 431

Kansas State Department of Education
Information Services and Retrieval Division
120 East Tenth Street
Topeka, Kansas 66601
Telephone: (913) 296-3136

Wichita State University
Library
Wichita, Kansas 67208
Telephone: (316) 689-3584

Kentucky

Western Kentucky University
Bowling Green, Kentucky 42101
Telephone: (502) 745-3951, Ext. 49

Kentucky State Department of Education
Professional Library, ERIC Center
Capital Plaza Tower
Frankfort, Kentucky 40324
Telephone: (502) 564-5385

Northern Kentucky University
Library
Louis B. Nunn Drive
Highland Heights, Kentucky 41076
Telephone: (606) 292-5458

University of Kentucky
Education Library
205 Dickey Hall
Lexington, Kentucky 40506
Telephone: (606) 258-4939

University of Louisville
Main Library
Belknap Campus
Louisville, Kentucky 40208
Telephone: (502) 588-6747

Morehead State University
Johnson Camden Library
Morehead, Kentucky 40351
Telephone: (606) 783-2251

Murray State University
Special Collections Department
Murray, Kentucky 42071
Telephone: (502) 762-6152

Eastern Kentucky University
John Grant Crabbe Library
Richmond, Kentucky 40475
Telephone: (606) 622-5253

Louisiana

Louisiana State Department of Education
Research Coordinating Unit
Baton Rouge, Louisiana 70804
Telephone: (504) 389-6629

Louisiana State University
Library
Social Science Division
Baton Rouge, Louisiana 70803
Telephone: (504) 388-4226

Grambling State University
A.C. Lewis Library
Grambling, Louisiana 71245
Telephone: (318) 247-6941, Ext. 220

Southeastern Louisiana University
Linus A. Sims Memorial Library
Hammond, Louisiana 70401
Telephone: (504) 549-2234

University of Southwestern Louisiana
Library
Lafayette, Louisiana 70504
Telephone: (318) 233-3850

McNeese State University
Frazar Memorial Library
Lake Charles, Louisiana 70601
Telephone: (318) 477-2520, Ext. 266

Northeast Louisiana University
Sandel Library
Monroe, Louisiana 71291
Telephone: (318) 342-4176; 342-2196; 342-2195

Northwestern State University of Louisiana
Watson Library
Natchitoches, Louisiana 71457
Telephone: (318) 357-4553

University of New Orleans
Earl K. Long Library
Lakefront
New Orleans, Louisiana 70122
Telephone: (504) 288-3161

Louisiana Tech University
Prescott Memorial Library
Ruston, Louisiana 71270
Telephone: (318) 257-2358

Nicholls State University
Library
Polk Hall
Thibodaux, Louisiana 70301
Telephone: (504) 446-8111, Ext. 408

Maine

Maine State Library
Cultural Building
Augusta, Maine 04333
Telephone: (207) 289-3561

University of Maine at Orono
Raymond H. Fogler Library
Orono, Maine 04473
Telephone: (207) 581-7602

Maryland

Anne Arundel County Public Schools
Media Services
2644 Riva Road
Annapolis, Maryland 21401
Telephone: (301) 224-1876

Coppin State College
Parlett Moore Library
2500 West North Avenue
Baltimore, Maryland 21216
Telephone: (301) 383-5945

Johns Hopkins University
Milton S. Eisenhower Library
34th and Charles Streets
Baltimore, Maryland 21218
Telephone: (301) 366-3300

Loyola College
Notre Dame Library
200 Winston Avenue
Baltimore, Maryland 21212
Telephone: (301) 532-8787

Maryland State Department of Education
Media Services Center
BWI Airport
Baltimore, Maryland 21240
Telephone: (301) 796-8300, Ext. 255

Towson State College
Albert S. Cook Library
Baltimore, Maryland 21204
Telephone: (301) 321-2461

ERIC Processing and Reference Facility
4833 Rugby Avenue
Bethesda, Maryland 20014
Telephone: (301) 656-9723

Bowie State College
Thomas Library
Bowie, Maryland 20715
Telephone: (301) 262-3350, Ext. 331

University of Maryland
College of Education
Curriculum Laboratory, Room 2226
College Park, Maryland 20742
Telephone: (301) 454-5466

University of Maryland
McKeldin Library
College Park, Maryland 20742
Telephone: (301) 454-3034

University of Maryland, Eastern Shore
Frederick Douglass Library
Princess Anne, Maryland 21853
Telephone: (301) 651-2200

Montgomery County Public Schools
Educational Materials Laboratory
850 North Hungerford Drive
Rockville, Maryland 20850
Telephone: (301) 279-3227

Salisbury State College
Blackwell Library
Salisbury, Maryland 21801
Telephone: (301) 546-3261

Western Maryland College
Hoover Library
Westminster, Maryland 21157
Telephone: (301) 848-7000, Ext. 282

Massachusetts

University of Massachusetts
Library
Amherst, Massachusetts 01002
Telephone: (413) 545-0150

Boston Public Library
Microtext Department
666 Boyl Street
Boston, Massachusetts 02116
Telephone: (617) 536-5400, Ext. 274

Boston State College
625 Huntington Avenue
Boston, Massachusetts 02115
Telephone: (617) 731-3300

Boston University
Mugar Memorial Library
Microforms Room
771 Commonwealth Avenue
Boston, Massachusetts 02215
Telephone: (617) 353-3717

Massachusetts State Department of Education
Staff Library
182 Tremont Street
Boston, Massachusetts 02111
Telephone: (617) 727-5749

Massachusetts Teachers Association
20 Ashburton Road
Boston, Massachusetts 02108
Telephone: (617) 742-7950

Northeastern University
Library
360 Huntington Avenue
Boston, Massachusetts 02115
Telephone: (617) 437-2356

Bridgewater State College
Clement C. Maxwell Library
Bridgewater, Massachusetts 02324
Telephone: (617) 697-8321, Ext. 454

Northeastern University
Suburban Campus Library
South Bedford Street
Burlington, Massachusetts 01803
Telephone: (617) 272-5500, Ext. 55

Harvard University
Graduate School of Education
Monroe C. Gutman Library
6 Appian Way
Cambridge, Massachusetts 02138
Telephone: (617) 495-3421

Massachusetts State Department of Education
Greater Boston Regional Education Center
54 Rindge Avenue Extension
Cambridge, Massachusetts 02140
Telephone: (617) 547-7472

Merrimack Education Center
101 Mill Road
Chelmsford, Massachusetts 01824
Telephone: (617) 256-3985

Boston College
Bapst Library
Chestnut Hill, Massachusetts 02167
Telephone: (617) 969-0100, Ext. 308

ERIC MICROFICHE COLLECTIONS

Fitchburg State College
Library
Fitchburg, Massachusetts 01420
Telephone: (617) 345-2151

Framingham State College
Whittemore Library
State Street
Framingham, Massachusetts 01701
Telephone: (617) 872-3501, Ext. 271

Northern Essex Community College
Learning Resources Center
100 Elliott Street
Haverhill, Massachusetts 01830
Telephone: (617) 374-0721, Ext. 128

University of Lowell (South Campus)
O'Leary Library
Wilder Street
Lowell, Massachusetts 01854
Telephone: (617) 454-8011, Ext. 484

Tufts University
Wessell Library
Medford, Massachusetts 02155
Telephone: (617) 628-5000, Ext. 388

North Adams State College
Freel Library
Church Street
North Adams, Massachusetts 01247
Telephone: (413) 664-4511, Ext. 221

Quincy Public Schools
Department of Library and Media Services
100 Brooks Avenue
Quincy, Massachusetts 02169
Telephone: (617) 471-0100, Ext. 257

Salem State College
Library
Lafayette and Loring Streets
Salem, Massachusetts 01970
Telephone: (617) 745-0556

Springfield College
Babson Library
Alden Street
Springfield, Massachusetts 01109
Telephone: (413) 787-2340

Career Education Document Information System (CEDIS)
2 Sun Life Park
100 Worcester Street
Wellesley Hills, Massachusetts 02181
Telephone: (617) 235-7020

Westfield State College
Library
Westfield, Massachusetts 01085
Telephone: (413) 568-3311, Ext. 358

Michigan

Grand Valley State College
Library
Allendale, Michigan 49401
Telephone: (616) 895-7611; 895-6611, Ext. 252

ERIC Clearinghouse for Counseling and Personnel Services
University of Michigan
2108 School of Education
East University Avenue
Ann Arbor, Michigan 48109
Telephone: (313) 764-9492

University of Michigan
Graduate Library
Ann Arbor, Michigan 48109
Telephone: (313) 764-2389

Andrews University
James White Library
Teaching Materials Center
Berrien Springs, Michigan 49104
Telephone: (616) 471-3272

University of Michigan-Dearborn
Library
4901 Evergreen Road
Dearborn, Michigan 48128
Telephone: (313) 271-2300, Ext. 241

Detroit Board of Education
Professional Library
5057 Woodward Avenue
Detroit, Michigan 48202
Telephone: (313) 494-1626

Wayne State University
Education Library
Detroit, Michigan 48202
Telephone: (313) 577-4035

Michigan State University
Library-Serials Department
East Lansing, Michigan 48823
Telephone: (517) 353-4593

University of Michigan-Flint
Charles Stewart Mott Library
1401 East Court Street
Flint, Michigan 48503
Telephone: (313) 767-4000, Ext. 230

Western Michigan University
Educational Resources Center
Sangren Hall
Kalamazoo, Michigan 49008
Telephone: (616) 383-1666

Michigan Department of Education
State Library Services
735 East Michigan Avenue
Lansing, Michigan 48913
Telephone: (517) 373-1592

ERIC MICROFICHE COLLECTIONS

Northern Michigan University
Marquette, Michigan 49855
Telephone: (906) 227-2269

Central Michigan University
Park Library
Mount Pleasant, Michigan 48859
Telephone: (517) 774-3244

Oakland Schools
Library
2100 Pontiac Lake Road
Pontiac, Michigan 48054
Telephone: (313) 858-1961

Oakland University
Kresge Library-Documents Department
Squirrel Road at Walton Boulevard
Rochester, Michigan 48063
Telephone: (313) 377-2476

Wayne County Intermediate School District
Professional Resource Center
33030 Van Born Road
Wayne, Michigan 48184
Telephone: (313) 274-9010

Eastern Michigan University
Center of Educational Resources
Ypsilanti, Michigan 48197
Telephone: (313) 487-0490

Minnesota

Bemidji State University
A.C. Clark Library
Bemidji, Minnesota 56601
Telephone: (218) 755-2958

Mankato State University
Educational Resource Center
Mankato, Minnesota 56001
Telephone: (507) 389-2019

University of Minnesota
Education Library
214 Walter Library
Minneapolis, Minnesota 55455
Telephone: (612) 373-3841

Moorhead State University
Moorhead, Minnesota 56560
Telephone: (218) 236-2922

Saint Cloud State University
Learning Resources Center
Saint Cloud, Minnesota 56301
Telephone: (612) 255-2085

College of Saint Thomas
O'Shaughnessy Library
2115 Summit Avenue
Saint Paul, Minnesota 55105
Telephone: (612) 647-5723

Minnesota State Department of Education
Professional Library
401 Capitol Square Building
Saint Paul, Minnesota 55101
Telephone: (612) 296-6684

Winona State University
Maxwell Library
Winona, Minnesota 55987
Telephone: (507) 457-2040

Mississippi

Delta State University
Cleveland, Mississippi 38732
Telephone: (601) 843-2483

Mississippi University for Women
Columbus, Mississippi 39701
Telephone: (601) 328-4808

University of Southern Mississippi
Library
Hattiesburg, Mississippi 39401
Telephone: (601) 266-7301, Ext. 31

Jackson State University
Reference Library
1325 Lynch Street
Jackson, Mississippi 39217
Telephone: (601) 968-2123

Mississippi State Department of Education
Educational Media Service
901 Sillers Building
Jackson, Mississippi 39205
Telephone: (601) 354-6864

Meridian Junior College
Library
Meridian, Mississippi 39301
Telephone: (601) 483-8241, Ext. 223

Mississippi State University
Library
Humanities Reading Room
Mississippi State, Mississippi 39762
Telephone: (601) 325-4225

University of Mississippi
Library
University, Mississippi 38677
Telephone: (601) 232-7091

Missouri

Southeast Missouri State University
Kent Library
Cape Girardeau, Missouri 63701
Telephone: (314) 334-8211, Ext. 225

University of Missouri-Columbia
Education-Psychology Library
218 Ellis Library
Columbia, Missouri 65201
Telephone: (314) 882-6428; 882-4701

Missouri State Department of Education
Jefferson Building
Jefferson City, Missouri 65101
Telephone: (314) 751-2661

Missouri Southern State College
Newman and Duquesne Roads
Joplin, Missouri 64801
Telephone: (417) 624-8100

Kansas City Public Library
(for Region VII U.S. Office of Education/DHEW)
311 East Twelfth Street
Kansas City, Missouri 64106
Telephone: (816) 221-2685

Kansas City Technical Education Center
1215 Truman Road
Kansas City, Missouri 64106
Telephone: (816) 471-3568

University of Missouri at Kansas City
Library
5100 Rockhill Road
Kansas City, Missouri 64110
Telephone: (816) 276-1000

Northeast Missouri State University
Pickler Memorial Library
Kirksville, Missouri 63501
Telephone: (816) 665-5121, Ext. 7186

Southwest Missouri State University
Library
Springfield, Missouri 65802
Telephone: (417) 831-1561, Ext. 208

St. Louis Board of Education
Library Services Center
1100 Farrar Street
St. Louis, Missouri 63107

University of Missouri at St. Louis
Thomas Jefferson Library
8001 Natural Bridge Road
St. Louis, Missouri 63121
Telephone: (314) 453-5568

Washington University
John M. Olin Library
Lindell and Skinker Boulevards
St. Louis, Missouri 63130
Telephone: (314) 863-0100, Ext. 4526

Central Missouri State University
Warrensburg, Missouri 64093
Telephone: (816) 429-4150

Montana

Eastern Montana College
Library (Serials Department)
Billings, Montana 59101
Telephone: (406) 657-2320

Montana State University
Library
Bozeman, Montana 59715
Telephone: (406) 994-3171

Northern Montana College
Library
Havre, Montana 59501
Telephone: (406) 265-7821, Ext. 277

Nebraska

Chadron State College
Library
Main Street and Tenth Street
Chadron, Nebraska 69337
Telephone: (308) 432-4451

Kearney State College
Calvin T. Ryan Library
Kearney, Nebraska 68847
Telephone: (308) 236-4218

University of Nebraska at Lincoln
Love Library
Room 202
Lincoln, Nebraska 68508
Telephone: (402) 472-2519

University of Nebraska at Omaha
Library
Omaha, Nebraska 68101
Telephone: (402) 554-2361

Wayne State College
U.S. Conn Library
Wayne, Nebraska 68787
Telephone: (402) 375-2200

Nevada

University of Nevada at Las Vegas
James R. Dickinson Library
4505 Maryland Parkway
Las Vegas, Nevada 89154
Telephone: (702) 739-3285

University of Nevada at Reno
Getchell Library
Reno, Nevada 89507
Telephone: (702) 784-6566

New Hampshire

New Hampshire State Department of Education
Twin State Educational Information System
410 State House Annex
Concord, New Hampshire 03301
Telephone: (603) 271-3536

University of New Hampshire
Dimond Library
Durham, New Hampshire 03824
Telephone: (603) 862-1544

Plymouth State College
Lamson Library
Highland Street
Plymouth, New Hampshire 03264
Telephone: (603) 536-1550, Ext. 257

New Jersey

Educational Improvement Center of Northwest New Jersey
Halko Drive
Cedar Knolls, New Jersey 07927
Telephone: (201) 539-0331

New Jersey Occupational Resource Center
Building 871
Plainfield Avenue
Edison, New Jersey 08817
Telephone: (201) 985-7769; 7929

Glassboro State College
Learning Resources Center/SEIMC
Savitz Library
Glassboro, New Jersey 08028
Telephone: (609) 881-4506

Jersey City State College
F.A. Irwin Library
2039 Kennedy Boulevard
Jersey City, New Jersey 07305
Telephone: (201) 547-3017

Rider College
Franklin F. Moore Library
2083 Lawrenceville Road
Lawrenceville, New Jersey 08648
Telephone: (609) 896-0800, Ext. 315

Rutgers University
Alexander Library
College Avenue
New Brunswick, New Jersey 08901
Telephone: (201) 932-7526

Phillipsburg Free Public Library
200 Frost Avenue
Phillipsburg, New Jersey 08865
Telephone: (201) 454-3712

ERIC Clearinghouse on Tests, Measurement and Evaluation
Educational Testing Service
Princeton, New Jersey 08540
Telephone: (609) 921-9000

Monmouth County Library
Eastern Branch
Area Reference Center
Route No. 35
Shrewsbury, New Jersey 07701
Telephone: (201) 842-5995

Seton Hall University
McLaughlin Library
South Orange, New Jersey 07079
Telephone: (201) 762-9000

Trenton State College
Roscoe L. West Library
Trenton, New Jersey 08625
Telephone: (609) 771-2417

Kean College of New Jersey
Library
Morris Avenue
Union, New Jersey 07083
Telephone: (201) 527-2112

Montclair State College
Harry A. Sprague Library
Valley Road
Upper Montclair, New Jersey 07043
Telephone: (201) 893-5119

William Paterson College of New Jersey
Library
300 Pompton Road
Wayne, New Jersey 07470
Telephone: (201) 881-2117

New Mexico

University of New Mexico
Zimmerman Library
Albuquerque, New Mexico 87131
Telephone: (505) 277-5961

ERIC Clearinghouse on Rural Education and Small Schools
New Mexico State University
Las Cruces, New Mexico 88003
Telephone: (505) 646-2623

New Mexico State University
Library
Las Cruces, New Mexico 88003
Telephone: (505) 646-4129

New Mexico Highlands University
Donnelly Library
Las Vegas, New Mexico 87701
Telephone: (505) 425-7511, Ext. 331

ERIC MICROFICHE COLLECTIONS

New Mexico State Library
300 Don Gaspar
Santa Fe, New Mexico 87105
Telephone: (505) 827-2033

Western New Mexico University
Miller Library
Silver City, New Mexico 88061
Telephone: (505) 538-6731

New York

New York State Library
State Education Building
Albany, New York 12234
Telephone: (518) 474-5961; 474-3759

SUNY at Albany
1400 Washington Avenue
Library
Albany, New York 12222
Telephone: (518) 457-3576

Board of Cooperative Educational Services
33 Willets Avenue
Belmont, New York 14813
Telephone: (716) 268-7652

SUNY College at Brockport
Brockport, New York 14420
Telephone: (716) 395-2450

Herbert H. Lehman College
Bedford Park Boulevard West
Bronx, New York 10468
Telephone: (212) 690-8580

James Monroe High School
1300 Boynton Avenue
Bronx, New York 10472
Telephone: (212) 542-0031; 893-6794

Manhattan College
Library
Manhattan College Parkway
Bronx, New York 10471
Telephone: (212) 548-1400

Brooklyn College
Library
Bedford Avenue and Avenue H
Brooklyn, New York 11210
Telephone: (212) 780-5335

SUNY at Buffalo
Lockwood Library
Buffalo, New York 14214
Telephone: (716) 831-4027

SUNY College at Buffalo
E.H. Butler Library
1300 Elmwood Avenue
Buffalo, New York 14222
Telephone: (716) 862-6302

SUNY College at Cortland
Memorial Library
Cortland, New York 13045
Telephone: (607) 753-2227

Mercy College
Library
555 Broadway
Dobbs Ferry, New York 10522
Telephone: (914) 693-4500, Ext. 250

Board of Cooperative Educational Services
Library
431 Philo Road
Elmira, New York 14903
Telephone: (607) 739-3581

Queens College
Paul Klapper Library
Flushing, New York 11367
Telephone: (212) 520-7252

SUNY College at Fredonia
Reed Library
Fredonia, New York 14063
Telephone: (716) 673-3183

Adelphi University
Library
South Avenue
Garden City, New York 11530
Telephone: (516) 294-8700

SUNY College at Geneseo
Geneseo, New York 14454
Telephone: (716) 245-5595

Long Island University
C.W. Post Library
Greenvale, New York 11548
Telephone: (516) 299-2842

Hofstra University
Library
1000 Fulton Avenue
Hempstead, New York 11550
Telephone: (516) 560-3420

Cornell University
Albert R. Mann Library
Ithaca, New York 14850
Telephone: (607) 256-2285

Queens Borough Public Library
89-11 Merrick Boulevard
Jamaica, New York 11432
Telephone: (212) 739-1900

St. John's University
Library
Jamaica, New York 11439
Telephone: (212) 969-8000, Ext. 202

Board of Cooperative Educational Services, Erie No. 1
2 West Pleasant Avenue
Lancaster, New York 14086
Telephone: (716) 681-7300

ERIC MICROFICHE COLLECTIONS

La Guardia Community College
31-10 Thomson Avenue
Long Island City, New York 11101
Telephone: (212) 626-5523

Board of Cooperative Educational Services
Curriculum Resource Center
Mexico, New York 13114
Telephone: (315) 963-7251

SUNY College at New Paltz
Sojourner Truth Library
New Paltz, New York 12561
Telephone: (914) 257-2212

College of New Rochelle
Gill Library
New Rochelle, New York 10801
Telephone: (914) 632-5300, Ext. 235

Bank Street College of Education
Library
610 West 112th Street
New York, New York 10025
Telepnone: (212) 663-7200, Ext. 245

Bernard M. Baruch College
Library
156 East 25th Street
New York, New York 10010
Telephone: (212) 725-3112

City University of New York
City College Library
135th Street at Convent Avenue
New York, New York 10031
Telephone: (212) 690-4148

City University of New York
Graduate School Library
33 West 42nd Street
New York, New York 10036
Telephone: (212) 790-4232

Columbia University
Teachers College Library
525 West 120th Street
New York, New York 10027
Telephone: (212) 678-3020

ERIC Clearinghouse on Urban Education
Teachers College, Columbia University
525 West 120th Street
New York, New York 10027
Telephone: (212) 678-3437

Fordham University
Library
Columbus Avenue and 60th Street
New York, New York 10023
Telephone: (212) 956-2766

Hunter College
695 Park Avenue
New York, New York 10021
Telephone: (212) 360-5523

New York Public Library
Mid-Manhattan Library
8 East 40th Street
New York, New York 10016
Telephone: (212) 790-6591

New York University
E.H. Bobst Library
Microform Center
70 Washington Square South
New York, New York 10012
Telephone: (212) 598-3312

U.S. Office of Education/DHEW
Federal Building C, Room 3940
26 Federal Plaza
New York, New York 10007

New York Institute of Technology
Library
Wheatley Road
Old Westbury, New York 11568
Telephone: (516) 686-7657

SUNY at Old Westbury
Library
Old Westbury, New York 10301
Telephone: (516) 876-3152

SUNY College at Oneonta
James M. Milne Library
Oneonta, New York 13820
Telephone: (607) 431-2453

SUNY College at Oswego
Penfield Library
Oswego, New York 13126
Telephone: (315) 341-3121

Board of Cooperative Educational Services, Second Supervisory District (BOCES II)
201 Sunrise Highway
Patchogue, New York 11772
Telephone: (516) 289-2200

Board of Cooperative Educational Services
Education Center
Plattsburgh, New York 12901
Telephone: (518) 561-0100

SUNY College at Plattsburgh
Benjamin F. Feinberg Library
Beekman Street
Plattsburgh, New York 12901
Telephone: (518) 564-3181

SUNY College at Potsdam
F.W. Crumb Memorial Library
Potsdam, New York 13676
Telephone: (315) 268-4991

University of Rochester
Education Library
Rochester, New York 14627
Telephone: (716) 275-4481

Richmond College
Library
130 Stuyvesant Place
Staten Island, New York 10301
Telephone: (212) 720-3149

Wagner College
Horrman Library
Staten Island, New York 10301
Telephone: (212) 390-3001

SUNY at Stony Brook
Main Library - Microforms Room
Stony Brook, New York 11794
Telephone: (516) 246-5976; 246-7723

Rockland Community College
Library Media Center
145 College Road
Suffern, New York 10901
Telephone: (914) 356-4650

Syracuse City School District
Instructional Resource Center
910 Erie Boulevard East
Syracuse, New York 13210
Telephone: (315) 425-4273

Syracuse University
Library
Carnegie Building, Room 230
Syracuse, New York 13210
Telephone: (315) 423-3715

SUNY College of Utica-Rome
811 Court Street
Utica, New York 13502
Telephone: (315) 792-3421

Board of Cooperative Educational Services
Education Communication Center
Spring Road
Verona, New York 13470
Telephone: (315) 363-8000; 339-3680

Nassau Board of Cooperative Educational Services
Educational Resource Center
1196 Prospect Avenue
Westbury, New York 11590
Telephone: (516) 997-8751

Board of Cooperative Educational Services
School Services Building
Yorktown Heights, New York 10598
Telephone: (914) 245-2700, Ext. 220

North Carolina

Appalachian State University
Boone, North Carolina 28608
Telephone: (704) 262-2186

University of North Carolina at Chapel Hill
L.R. Wilson Library
Chapel Hill, North Carolina 27514
Telephone: (919) 933-5517

Charlotte Mecklenburg Schools
Curriculum Resources Center
Charlotte, North Carolina 28201
Telephone: (704) 372-8620

University of North Carolina at Charlotte
UNCC Station
Charlotte, North Carolina 28223
Telephone: (704) 597-2189

Western Carolina University
Hunter Library
Cullowhee, North Carolina 28723
Telephone: (704) 293-7306

Elizabeth City State University
G.R. Little Library
1001 Parkview Drive
Elizabeth City, North Carolina 27909
Telephone: (919) 335-0551, Ext. 332

Fayetteville State University
Chestnutt Library
Fayetteville, North Carolina 28301
Telephone: (919) 483-6144

University of North Carolina at Greensboro
Jackson Library
Greensboro, North Carolina 27412
Telephone: (919) 379-5251

East Carolina University
Joyner Library
Greenville, North Carolina 27834
Telephone: (919) 758-6677

North Carolina State University
D.H. Hill Library
Raleigh, North Carolina 27607
Telephone: (919) 737-3280

State Department of Public Instruction
Education Information Center
Room 581, Education Building
Raleigh, North Carolina 27611
Telephone: (919) 829-7904

North Dakota

University of North Dakota
ERIC Center
Chester Fritz Library
Grand Forks, North Dakota 58201
Telephone: (701) 777-2617

ERIC MICROFICHE COLLECTIONS

Ohio

University of Akron
Bierce Library
Akron, Ohio 44325
Telephone: (216) 375-7494

Ohio University
Library
Athens, Ohio 45701
Telephone: (614) 594-5367

Baldwin-Wallace College
Ritter Library
57 East Bagley Road
Berea, Ohio 44017
Telephone: (216) 826-2206

Bowling Green State University
Library
Bowling Green, Ohio 43403
Telephone: (419) 372-2362

University of Cincinnati
Main Library
Cincinnati, Ohio 45221
Telephone: (513) 522-7624

Xavier University
Library
Victory Parkway and Dana Avenue
Cincinnati, Ohio 45207
Telephone: (513) 745-3881

Cleveland State University
Library
1983 East 24th Street
Cleveland, Ohio 44115
Telephone: (216) 687-2374

Ohio State University
Center for Vocational Education
Research Library
1960 Kenny Road
Columbus, Ohio 43210
Telephone: (614) 486-3655

ERIC Clearinghouse for Science, Mathematics, and Environmental Education
1200 Chambers Road, Third Floor
Columbus, Ohio 43212
Telephone: (614) 422-6717

Ohio Department of Education
Division of Planning and Evaluation
Ohio Departments Building
65 South Front Street
Columbus, Ohio 43215.
Telephone: (614) 466-3825

Ohio Education Association
Instruction and Professional Development Division
225 East Broad Street
Columbus, Ohio 43216
Telephone: (614) 228-4526

Ohio State University
Education Library
060 ARPS Hall
1945 North High Street
Columbus, Ohio 43210
Telephone: (614) 422-6275

Wright State University
Library
Dayton, Ohio 45431
Telephone: (513) 873-2925

Kent State University
Library
Kent, Ohio 44242
Telephone: (216) 672-3045

Miami University
King Library
Oxford, Ohio 45056
Telephone: (513) 529-4141

University of Toledo
Carlson Library
2801 West Bancroft Street
Toledo, Ohio 43606
Telephone: (419) 537-2843

Central State University
Library
Wilberforce, Ohio 45384
Telephone: (513) 376-7212

Youngstown State University
William F. Maag Library
410 Wick Avenue
Youngstown, Ohio 44555
Telephone: (216) 746-1851, Ext. 431

Oklahoma

East Central Oklahoma State University
Library
Ada, Oklahoma 74820
Telephone: (405) 332-8000, Ext. 3255

Northwestern Oklahoma State University
Library
Alva, Oklahoma 73717
Telephone: (405) 327-1700

Central State University
Library
Edmond, Oklahoma 73034
Telephone: (405) 341-2980, Ext. 494

University of Oklahoma
Library
401 West Brooks, Room 210
Norman, Oklahoma 73069
Telephone: (405) 325-3241

Oklahoma State Regents for Higher Education
500 Education Building
State Capitol
Oklahoma City, Oklahoma 73121
Telephone: (405) 521-2444

Oklahoma State University
Library
Stillwater, Oklahoma 74074
Telephone: (405) 372-6211, Ext. 6065

Northeastern Oklahoma State University
John Vaughan Library
Tahlequah, Oklahoma 74464
Telephone: (918) 456-5511, Ext. 3110

University of Tulsa
Harwell Education Library
600 South College
Tulsa, Oklahoma 74104
Telephone: (918) 939-6351, Ext. 315

Southwestern Oklahoma State University
Al Harris Library
Weatherford, Oklahoma 73096
Telephone: (405) 772-6611, Ext. 5310

Oregon

Southern Oregon State College
Library
Ashland, Oregon 97520
Telephone: (503) 482-6443

Oregon State University
Library
Corvallis, Oregon 97331
Telephone: (503) 754-3331

University of Oregon
Library
Education-Psychology Division
Eugene, Oregon 97403
Telephone: (503) 686-3074

Oregon College of Education
Library
Monmouth, Oregon 97361
Telephone: (503) 838-1220, Ext. 240

Northwest Regional Educational Laboratory
710 Southwest Second Street
Portland, Oregon 97204
Telephone: (503) 248-6922

Portland State University
Education Library
934 Southwest Harrison Street
Portland, Oregon 97207
Telephone: (503) 229-3684

Oregon Department of Education
Resource Dissemination Center
942 Lancaster Drive Northeast
Salem, Oregon 97310
Telephone: (503) 378-3566

Pennsylvania

Bloomsburg State College
Harvey A. Andruss Library
Bloomsburg, Pennsylvania 17815
Telephone: (717) 389-2900

California State College
Library
California, Pennsylvania 15419
Telephone: (412) 938-4091

Cheyney State College
L.P. Hill Library
Cheyney, Pennsylvania 19319
Telephone: (215) 399-6880, Ext. 208

Clarion State College
Carlson Library
Clarion, Pennsylvania 16254
Telephone: (814) 226-6000, Ext. 423

East Stroudsburg State College
Kemp Library
East Stroudsburg, Pennsylvania 18301
Telephone: (717) 424-3594

Edinboro State College
Baron-Forness Library
Edinboro, Pennsylvania 16444
Telephone: (814) 732-2780

State Library of Pennsylvania
Room 116, Education Building
Harrisburg, Pennsylvania 17126
Telephone: (717) 787-3752

Indiana University of Pennsylvania
Library
Indiana, Pennsylvania 15701
Telephone: (412) 357-2338

Regional Resources Center for Special Education
443 South Gulph Road
King of Prussia, Pennsylvania 19406
Telephone: (215) 265-7321

Research and Information Services for Education
198 Allendale Road
King of Prussia, Pennsylvania 19406
Telephone: (215) 265-6056

Kutztown State College
Rohrbach Library
Kutztown, Pennsylvania 19530
Telephone: (215) 683-3511, Ext. 302

Lock Haven State College
Stevenson Library
Lock Haven, Pennsylvania 17745
Telephone: (717) 748-5351, Ext. 333

Mansfield State College
Retan Library
Mansfield, Pennsylvania 16933
Telephone: (717) 662-4163

Pennsylvania State University
Capitol Campus
Library
Middletown, Pennsylvania 17057
Telephone: (717) 787-7761

Millersville State College
Vocational Education Information Network (VEIN)
Stayer Research and Services
Millersville, Pennsylvania 17551
Telephone: (717) 872-5411, Ext. 552

Bucks County Community College
Library
Swamp Road
Newtown, Pennsylvania 18940
Telephone: (215) 968-5861, Ext. 307

Research for Better Schools, Inc.
1700 Market Street
Philadelphia, Pennsylvania 19103
Telephone: (215) 561-4100

Saint Joseph's College
Drexel Library
54th and City Avenue
Philadelphia, Pennsylvania 19131
Telephone: (215) 879-7557

School District of Philadelphia
Pedagogical Library
21st Street South of the Parkway
Philadelphia, Pennsylvania 19103
Telephone: (215) 299-7783

Temple University
Micromaterials Department
Thirteenth and Berks Street
Philadelphia, Pennsylvania 19122
Telephone: (215) 787-8239

U.S. Office of Education/DHEW
Region III
3535 Market Street, Room 16200
Philadelphia, Pennsylvania 19101
Telephone: (215) 596-1035

University of Pittsburgh
233 Hillman Library
Pittsburgh, Pennsylvania 15260
Telephone: (412) 624-4528

Shippensburg State College
Library
Shippensburg, Pennsylvania 17257
Telephone: (717) 532-9121

Slippery Rock State College
Library
Slippery Rock, Pennsylvania 16057
Telephone: (412) 794-7243

Pennsylvania State University
Pattee Library
University Park, Pennsylvania 16802
Telephone: (814) 863-0377

West Chester State College
Francis Harvey Green Library
West Chester, Pennsylvania 19380
Telephone: (215) 436-2869

King's College
D. Leonard Corgan Library
14 West Jackson Street
Wilkes-Barre, Pennsylvania 18711
Telephone: (717) 824-9931

Wilkes College
Eugene Shedden Farley Library
South Franklin at South Street
Wilkes-Barre, Pennsylvania 18703
Telephone: (717) 824-4651

Rhode Island

University of Rhode Island
Library
Kingston, Rhode Island 02881
Telephone: (401) 792-2653

Rhode Island College
James P. Adams Library
600 Mount Pleasant Avenue
Providence, Rhode Island 02908
Telephone: (401) 836-6600, Ext. 240

South Carolina

Charleston County Public Schools
3 Chisolm Street
Charleston, South Carolina 29401
Telephone: (803) 722-8461

Citadel Military College
Daniel Library
Charleston, South Carolina 29409
Telephone: (803) 577-6900, Ext. 2116

Clemson University
Robert Muldrow Cooper Library
Clemson, South Carolina 29631
Telephone: (803) 656-3027

South Carolina State Library
1500 Senate Street
Columbia, South Carolina 29205
Telephone: (803) 758-3138

Darlington County School District
255 Blue Street
Darlington, South Carolina 29532
Telephone: (803) 393-0477

South Carolina State College
Miller F. Whittaker Library
Orangeburg, South Carolina 29117
Telephone: (803) 536-7046

Winthrop College
Dacus Library
Oakland Avenue and Eden Terrace
Rock Hill, South Carolina 29733
Telephone: (803) 323-2131

South Dakota

South Dakota State Library
322 South Fort Street
Pierre, South Dakota 57501
Telephone: (605) 224-3131

University of South Dakota
Learning Resources Laboratory
I.D. Weeks Library
Vermillion, South Dakota 57069
Telephone: (605) 677-5371

Tennessee

Austin Peay State University
Woodward Library
Clarksville, Tennessee 37040
Telephone: (615) 648-7346

Tennessee Technological University
Jere Whitson Memorial Library
Cookeville, Tennessee 38501
Telephone: (615) 528-3217

East Tennessee State University
Sherrod Library
Johnson City, Tennessee 37601
Telephone: (615) 929-4338

University of Tennessee
Tennessee Research Coordinating Unit
416 Alumni Hall
Knoxville, Tennessee 37916
Telephone: (615) 974-3338

Memphis State University
John Brister Library
Memphis, Tennessee 38152
Telephone: (901) 454-2208

Middle Tennessee State University
Todd Library
Murfreesboro, Tennessee 37132
Telephone: (615) 898-2819

George Peabody College for Teachers
Education Library
Nashville, Tennessee 37203
Telephone: (615) 327-8184

University of Tennessee at Nashville
Library
Tenth and Charlotte Streets
Nashville, Tennessee 37203
Telephone: (615) 251-1419

Texas

Abilene Christian University
1600 Campus Court
Abilene, Texas 79601
Telephone: (915) 677-1911, Ext. 447

Education Service Center
Region XIII
6504 Tracor Lane
Austin, Texas 78721
Telephone: (512) 926-8080, Ext. 47

Juarez-Lincoln University
715 East First Street
Austin, Texas 78701
Telephone: (512) 474-5061

Southwest Educational Development Laboratory
211 East Seventh Street
Austin, Texas 78701
Telephone: (512) 476-6861, Ext. 207

Texas Education Agency
Resource Center Library
150 East Riverside Drive
Austin, Texas 78701
Telephone: (512) 475-3567

University of Texas at Austin
Library
Austin, Texas 78712
Telephone: (512) 471-3811

Lamar University
Mary and John Gray Library
Beaumont, Texas 77710
Telephone: (713) 838-8810

West Texas State University
Cornette Library
Canyon, Texas 79016
Telephone: (806) 656-2761

Texas A & M University
Library
College Station, Texas 77843
Telephone: (713) 845-1952

East Texas State University
James E. Gilliam Library
Commerce, Texas 75428
Telephone: (214) 468-2962

Texas A & I University at Corpus Christi
Library
Corpus Christi, Texas 78411
Telephone: (512) 991-6810

Crystal City Independent School District
805 East Crockett
Crystal City, Texas 78839
Telephone: (512) 374-2353, Sta. 72

Dallas Baptist College
Vance Memorial Library
3000 Florina Street
Dallas, Texas 75211
Telephone: (214) 331-8311, Ext. 250

Dallas Public Library
1954 Commerce Street
Dallas, Texas 75201
Telephone: (214) 748-9071, Ext. 329

North Texas State University
Library
Denton, Texas 76203
Telephone: (817) 788-2411

Texas Woman's University
Library
Denton, Texas 76204
Telephone: (817) 387-1612

Pan American University
Library
1201 West University Drive
Edinburg, Texas 78539
Telephone: (512) 381-2751

Education Service Center
Region XIX
6611 Boeing Drive
El Paso, Texas 79925
Telephone: (915) 779-3737

University of Texas at El Paso
Education Library
El Paso, Texas 79968
Telephone: (915) 747-5417

Houston Baptist University
Moody Library
7502 Fondren Road
Houston, Texas 77074
Telephone: (713) 774-7661, Ext. 304

Texas Southern University
Library
3201 Wheeler Avenue
Houston, Texas 77004
Telephone: (713) 527-7150

University of Houston
Library
Houston, Texas 77004
Telephone: (713) 749-3553

University of Houston at Clear Lake City
2700 Bay Area Boulevard
Houston, Texas 77058
Telephone: (713) 488-9294

Sam Houston State University
Huntsville, Texas 77340
Telephone: (713) 295-2848

University of Dallas
Library
Irving, Texas 75061
Telephone: (214) 438-1123

Central Texas College
Library
United States Highway 190 West
Killeen, Texas 76541
Telephone: (817) 526-1237

Texas A & I University at Kingsville
James C. Jernigan Library
Kingsville, Texas 78363
Telephone: (512) 595-3416

Texas A & I University at Laredo
Library
Laredo, Texas 78040
Telephone: (512) 722-8002

Education Service Center
Region XVII
700 Texas Commerce Building
Lubbock, Texas 79401
Telephone: (806) 763-4127

Texas Tech University
Lubbock, Texas 79409
Telephone: (806) 742-5257; 742-2241

Education Service Center
Region VIII
100 North Riddle Street
Mount Pleasant, Texas 75455
Telephone: (214) 572-6672

Stephen F. Austin State University
Library
Nacogdoches, Texas 75961
Telephone: (713) 569-4309

Ector County Independent School District
Professional Library
Odessa, Texas 79760
Telephone: (915) 332-9151, Ext. 67

University of Houston at Clear Lake City
Library
945 East Shaw
Pasadena, Texas 77502
Telephone: (713) 488-9294

Education Service Center
Region X
400 East Spring Valley
Richardson, Texas 75080
Telephone: (214) 231-6301

University of Texas at Dallas
Library
Richardson, Texas 75080
Telephone: (214) 690-2955

Angelo State University
2601 West Avenue North
San Angelo, Texas 76901
Telephone: (915) 942-2222

Our Lady of the Lake University
411 Southwest 24th Street
San Antonio, Texas 78235
Telephone: (512) 434-6711, Ext. 276

Trinity University
Library
715 Stadium Drive
San Antonio, Texas 78284
Telephone: (512) 736-8126

University of Texas at San Antonio
Library
San Antonio, Texas 78285
Telephone: (512) 691-4570

Southwest Texas State University
Library
San Marcos, Texas 78666
Telephone: (512) 392-2191

East Texas State University at Texarkana
Texarkana, Texas 75501
Telephone: (214) 838-0509

Texas College
Library
2404 North Grand Avenue
Tyler, Texas 75701
Telephone: (214) 593-8311

Texas Eastern University
Library
Tyler, Texas 75701
Telephone: (214) 566-1471

Baylor University
School of Education
Waco, Texas 76703
Telephone: (817) 755-3111

Education Service Center
Region IX
3014 Old Seymour Road
Wichita Falls, Texas 76309
Telephone: (817) 322-3108

Utah

Utah State University
Merrill Library and Learning Resources Program
Logan, Utah 84322
Telephone: (801) 752-4100

Weber State College
Documents Department
Ogden, Utah 84408
Telephone: (801) 399-5941, Ext. 485

Brigham Young University
Provo, Utah 84602
Telephone: (801) 374-1211, Ext 3809

University of Utah
Marriott Library
Salt Lake City, Utah 84112
Telephone: (801) 581-5563

Utah State Board of Education
Research and Development Division
250 East Fifth Street South
Salt Lake City, Utah 84111
Telephone: (801) 533-5891

Vermont

Twin State Educational Information System
State Department of Education
Montpelier, Vermont 05602
Telephone: (802) 828-3161

Virginia

Alexandria City Schools
Nichols Memorial Professional Library
3330 King Street
Alexandria, Virginia 22302
Telephone: (703) 836-6748; 548-5015, Ext. 43

Arlington Public Schools
Professional Library
1426 North Quincy Street
Arlington, Virginia 22207
Telephone: (703) 558-2836

ERIC Clearinghouse on Languages and Linguistics
Center for Applied Linguistics
1611 North Kent Street
Arlington, Virginia 22209
Telephone: (703) 528-4312

Virginia Polytechnic Institute and State University
Carol M. Newman Library
Blacksburg, Virginia 24061
Telephone: (703) 951-5589

University of Virginia
Education Library
306 Ruffner Hall
Charlottesville, Virginia 22901
Telephone: (804) 924-7040

Fairfax County Public Schools
Professional Reference Library
3500 Old Lee Highway
Fairfax, Virginia 22030
Telephone: (703) 591-4514

George Mason University
Fenwick Library
4400 University Drive
Fairfax, Virginia 22030
Telephone: (703) 323-2392

ERIC Clearinghouse on Reading and Communication Skills
Speech Communication Module
Suite 1001
5205 Leesburg Pike
Falls Church, Virginia 22041
Telephone: (703) 379-1888

Madison College
Madison Memorial Library
Harrisonburg, Virginia 22801
Telephone: (703) 433-6267

Lynchburg College
Lynchburg, Virginia 24501
Telephone: (804) 845-9071, Ext. 271

Old Dominion University
Library
Norfolk, Virginia 23508
Telephone: (804) 489-6247

Virginia State College
Johnston Memorial Library
Petersburg, Virginia 23803
Telephone: (804) 526-5111, Ext. 494

ERIC Clearinghouse for Handicapped and Gifted
Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091
Telephone: (703) 620-3660

Virginia Polytechnic Institute and State University
11440 Isaac Newton Square North
Reston, Virginia 22090
Telephone: (703) 471-4602

Virginia Commonwealth University
James Branch Cabell Library
901 Park Avenue
Richmond, Virginia 23220
Telephone: (804) 770-5572

Virginia State Department of Education
1312 East Grace Street, Room 224
Richmond, Virginia 23216
Telephone: (804) 770-2068

Virginia State Rehabilitative School Authority
327 West Main Street
Richmond, Virginia 23220
Telephone: (804) 786-8657

College of William and Mary
Earl Gregg Swem Library
Williamsburg, Virginia 23185
Telephone: (804) 229-3000, Ext. 405

Washington

Bellevue Public Schools
Educational Service Center
310 102nd Avenue, Northeast
Bellevue, Washington 98004
Telephone: (206) 455-6052

Western Washington State College
Bellingham, Washington 98225
Telephone: (206) 676-3295

Eastern Washington State College
Kennedy Memorial Library
Cheney, Washington 99004
Telephone: (509) 359-2263

Central Washington State College
Library
Ellensburg, Washington 98926
Telephone: (509) 963-1541

State Superintendent of Public Instruction
Professional Curriculum Library
Old Capitol Building
Olympia, Washington 98504
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Seattle, Washington 98148
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Weter Memorial Library
3307 Third Street West
Seattle, Washington 98119
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Marshall Curriculum and Instruction Center
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Seattle, Washington 98105
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University of Washington
Suzzallo Library
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Telephone: (206) 543-4174

West Virginia

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Library
Bluefield, West Virginia 24701
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Library
Charleston, West Virginia 25325
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West Virginia State Department of Education
1900 Washington Street East, Building B, Room 346
Charleston, West Virginia 25305
Telephone: (304) 348-3952

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Robert F. Kidd Library
Glenville, West Virginia 26351
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Huntington, West Virginia 25701
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Institute, West Virginia 25112
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Vining Library
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Eau Claire, Wisconsin 54701
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Wisconsin Board of Vocational, Technical and Adult Education
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126 Langdon Street
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Oshkosh, Wisconsin 54901
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Harold Andersen Library
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Telephone: (307) 766-2174

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Reference Service
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Toronto, Ontario M5T 1P6
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Saskatoon, Saskatchewan S7N 0W0
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British Library
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ED 091 172
John H. Wheatley and Herbert L. Coon, One Hundred Teaching Activities in Environmental Education. 1973; 204 pages. IRC price: $4.05.

ED 102 031
John H. Wheatley and Herbert L. Coon, Teaching Activities in Environmental Education, Volume II. 1974: 200 pages. IRC price: $4.65.

ED 125 868
John H. Wheatley and Herbert L. Coon, Teaching Activities in Environmental Education, Volume III. 1975; 195 pages. IRC price: $4.00.

ED (number not assigned as of December 1976)
Herbert L. Coon and Michele Y. Alexander, Energy Activities for the Classroom. 1976; 155 pages. IRC price: $4.50.

ED (number not assigned as of December 1976)
Mary Lynne Bowman and Herbert L. Coon, Environmental Education in the Urban Setting: Rationale and Teaching Activities (in process).

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Judith M. Schultz and Herbert L. Coon, Population Education Activities for the Classroom (in process).

CASE STUDIES

ED (number not assigned as of December 1976)
Clay A. Schoenfeld and John F. Disinger, Environmental Education in Action-I: Case Studies of Selected Programs (in process).

PROJECT/PROGRAM DIRECTORIES

ED 071 881 (not available from IRC)
John F. Disinger, A Directory of Projects and Programs in Environmental Education for Elementary and Secondary Schools. 1972; 530 pages.

ED 086 558
John F. Disinger and Beverly M. Lee, A Directory of Projects and Programs in Environmental Education for Elementary and Secondary Schools, 2nd edition. 1973; 686 pages. IRC price: $9.50.

ED 114 259
John F. Disinger, A Directory of Projects and Programs in Environmental Education, 3rd edition. 1975; 409 pages. IRC price: $5.25.

ED (number not assigned as of December 1976)
John F. Disinger, A Directory of Projects and Programs in Environmental Education, 4th edition. 1976; 340 pages. IRC price: $

STATE-LEVEL REPORTS

ED 085 262 (not available from IRC)
John F. Disinger and Beverly M. Lee, State Directories in Environmental Education: USOE Region I. 1973; 57 pages.

ED 087 264 (not available from IRC)
John F. Disinger and Beverly M. Lee, State Directories in Environmental Education: USOE Regions II and III. 1973; 191 pages.

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John F. Disinger and Beverly M. Lee, State Directories in Environmental Education: USOE Regions IV and V. 1973; 185 pages.

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John F. Disinger and Beverly M. Lee, State Directories in Environmental Education: USOE Regions VI and VII. 1973; 68 pages.

ED 086 515 (not available from IRC)
John F. Disinger and Beverly M. Lee, State Directories in Environmental Education: USOE Regions VIII, IX, and X. 1973; 162 pages.

ED 121 628
John F. Disinger and Mary Lynne Bowman, Environmental Education 1975: A State-by-State Report. 1975; 324 pages. IRC price: $6.50.

COMPILATIONS

Ed 096 157 (not available from EDRS)
Robert E. Roth and others, Environmental Education Abstracts and Index from RESEARCH IN EDUCATION, 1966-1972. 1973: 250 pages. IRC price: $15.00.

ED (number not assigned as of December 1976)
Robert E. Roth and others, Environmental Education Abstracts and Index from RESEARCH IN EDUCATION, 1973-1975 (in process).

REVIEWS, SUMMARIES, GUIDES

ED 059 913
Stanley L. Helgeson and others, A Review of Environmental Education for Elementary and Secondary Teachers. 1971; 186 pages. IRC price: $4.05.

ED 059 914
Stanley L. Helgeson and others, A Review of Environmental Education for Teachers of Urban/Disadvantaged. 1971; 167 pages. IRC price: $4.05.

ED 059 915
Stanley L. Helgeson and others, A Review of Environmental Education for School Administrators. 1971; 178 pages. IRC price: $4.05.

ED 068 359
Robert E. Roth and Stanley L. Helgeson, A Review of Research Related to Environmental Education. 1972; 56 pages. IRC price: $1.85.

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Richard Rocchio and Eve Lee, On Being a Master Planner...A Step-by-Step Guide, from a Nationwide Study of Environmental Education Planning. 1974; 165 pages. IRC price: $4.05.

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Robert E. Roth, A Review of Research Related to Environmental Education, 1973-1976. 1976; 72 pages. IRC price: $

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Robert Marlett, Current Issues in Environmental Education 1975: Selected Papers from the Fourth Annual Conference of the National Association for Environmental Education. 1975: 129 pages. IRC price: $3.25.

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Rudolph J. H. Schafer and John F. Disinger, Environmental Education Perspectives and Prospectives: Key Findings and Major Recommendations (of the July 1975 Snowmass Conference). 1975; 28 pages. IRC price: $1.00.

ED 121 612
Rudolph J. H. Schafer and John F. Disinger, Environmental Education Perspectives and Prospectives: Supporting Documentation (of the July 1975 Snowmass Conference). 1975; 87 pages. IRC price: $2.00.